Public Comments

Implementation of the Wassenaar Arrangement List of Dual-Use Items; Revisions to the Commerce control List and Reporting Requirements Under the Wassenaar Arrangement
(63FR02452 - January 15, 1998)

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WASS1-1

January 28, 1998

Patricia Muldonian
Regulatory Policy Division
Bureau of Export Administration
Department of Commerce
P.O. Box 273
Washington, D.C. 20044

SUBJECT: Comments Regarding Federal Register Dated January 15, 1998

Dear Ms. Muldonian,

This letter has been prepared to offer comments regarding the Federal Register published on January 15, 1998, entitled "Implementation of the Wassenaar Arrangement List of Dual-Use Items...".

The following suggestions would be extremely helpful to manufacturers' and exporters' as they digest and implement the massive changes reflected in this particular Federal Register.

a. **Provide a list of the ECCNs that are being deleted from the CCL.**
By doing this, it would enable a company to note, at a glance, if any of their export controlled products need to be re-assigned new ECCNs based on the deletion of several ECCNs. I counted 63 deleted ECCNs. I spent several tedious hours performing a one-to-one comparison check using the Federal Register CCL against the current CCL to determine which ECCNs were deleted. Also, it would be helpful to have a list of the new ECCNs as well, so that we could get a feel for what ECCN categories are most affected by the changes and allow us to focus on those areas.

b. **State in clear language if the CCL contained in the Federal Register completely replaces the current CCL.**
The summarization outline, beginning on page 2453, was not at all inclusive of the many changes that were made to the CCL. It gave the impression that only certain parts of the CCL were printed in the Federal Register. I am assuming that the CCL contained in the Federal Register totally replaces the current CCL. If so, the Advisory Notes for each applicable ECCN category were omitted in the Federal Register copy. Therefore, we must now refer to two publications to perform our duties.

c. **The April 15, 1998 deadline might not be enough time for larger companies.**
For manufacturers' and exporters' who handle hundreds of thousands of items, the 90-day grace period may not be reasonable. Not only have 63 ECCNs been deleted and 92 ECCNs added (based on my own calculations), but the ECCNs that remain have changes made within their entries as well. This means that all products have to be re-evaluated to see if the ECCNs they have been assigned still apply or if another ECCN is more appropriate. This is a daunting task even for a few hundred items.

d. **Provide a listing of the countries that make up the Wassenaar Arrangement.**
It would be helpful to know what countries are a part of the Wassenaar Arrangement. No where in the EAR is this addressed. An appropriate place might be in Part 743.1 (a) scope: after the first sentence.

I feel that these recommendations are not without merit and can be accomplished fairly easily. Hopefully, you will agree that these are worthwhile and can be considered for the next major revision. With so many significant changes taking place, these suggestions will help ensure that everyone involved with the regulations will come away with the same understanding of the interpretations which is essential to ensuring that a positive compliance record is maintained, and it will help us focus on the areas of the most importance. I can be reached at 716-588-7273 if further clarification is needed.

Sincerely,

Dianne DeLettera

Dianne DeLettera
Export Regulations
Eastman Kodak Company

WASS2-1

SIEMENS

February 6, 1998

Ms. Patricia Muldonian
Bureau of Export Administration
U.S. Department of Commerce
14th and Pennsylvania Avenue, NW
Washington, DC 20230

RE: Federal Register dated January 15, 1998 "Implementation of the Wassenaar Arrangement List of Dual-use items: Revisions to the Commerce Control List and Reporting Under the Wassenaar Arrangement"

Dear Ms. Muldonian:

On behalf of Siemens Corporation, and with respect to the above referenced Federal Register notice, the consideration of the following comments and recommendations is greatly appreciated:

1. It is recommended that the Bureau of Export Administration "BXA" implement the reporting requirements consistent with the requirements imposed on other Wassenaar member countries. Particularly with respect to the differing understanding of the term "export". For example, the "export" of certain technology under license exception TSR is required to be reported semiannually when released to specified countries. There appears to be no exemptions from this reporting requirement. It is my understanding that no other Wassenaar member country has a "deemed export" provision, consequently all other Wassenaar member countries are not obligated to report exports activities that would fall under the "deemed export" provisions in the EAR.

   Therefore, it is recommended that BXA amend part 743.1 to except the releases of technology to foreign nationals pursuant to the "deemed export" definition cited in EAR 734.2 (b)(2)(ii). In the spirit of uniformity and regulatory simplification, it is requested that BXA to exempt the "deemed exports" from the reporting requirement.

2. With respect to the format for reporting "technology" exports, it appears that the export between related parties must be monitored on a micro-level to ensure compliance with the reporting requirement. For example, including but not limited to, export as a result of verbal discussion, e-mail and fax transmission. Therefore, it is recommended that BXA adopt a provision in part 743.1(b) to specifically address the reporting requirements for

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technology exports as it is not practical to manage exports of technology on the micro-level. It is proposed to allow exporters to be able to provide a "scope" report to BXA with respect to technology exports, rather than a transactional account method. The scope report would include: the ECCN for the technology exported during the reporting period; the country of ultimate destination; and the name of the exporter

3. Per section 743.1(c)(v) of the EAR, it was determined in the Wassenaar Arrangement that items classified under ECCN subparagraph 5A001.b.8, i.e., radio equipment employing spread spectrum or frequency agility techniques, and test equipment therefore, is subject to the semiannual reporting requirement. Part 743.1(c)(v) also requires U.S. exporters to file a semiannual report for exports, to the specified countries, for all software controlled by 5D001.a. and technology controlled by 5E001.a Was it the intent under the Wassenaar Arrangement reporting requirement to require the report of export for all software and technology for the entire universe of items controlled under 5A001? Or, or is the intent to require the report for software and technology specifically related to 5A001.b.8 items?

   The cost associated with reporting the export of all software controlled by 5D001.a and technology controlled by 5E001.a is clearly far more imposing then the requirement to report the export of software and technology specific to 5A001.b.8 items.

   If the intent of the Wassenaar Arrangement is only require the report of the export of software and technology relating to radio equipment employing spread spectrum or frequency agility techniques, then it is recommended that BXA revise the paragraph 743.1(c)(v) to read, in part, "5D001.a and b. ("software" specially designed for 5A001.b.8), 5E001.a ("technology" specially designed for 5A001.b.8)...".

   Note: The same revision is recommended for the reporting requirement for other CCL categories affected by the same concept, e.g., 3D, 3E, 6D, 6E, etc.

4. Finally, the January 15, Federal Register notice significantly alters the type of authorization required for the export of certain items subject to the EAR. For example, the following four areas affecting the control status of items are impacted by the rule: 1)

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part 740 of the EAR is revised by "removing License Exception availability for missile technology (MT) controlled items..."; 2) items previously eligible for a license exception are subject to a license because there are new restrictions on "certain commodities, technologies, and software controlled for national security reasons for which the U.S. has agreed to license with extreme vigilance"; 3) the Wassenaar Arrangement releases several formally national security controlled items to the more liberal antiterrorism control level in the CCL; and 4) it appears new controls have been imposed on items formally not listed in the CCL, e.g., 6A001a.2.e. BXA has not provided the exporting community with list or cross-reference guide of the changes affecting these four areas. Therefore, prudence would dictate that virtually every item subject to the EAR be reclassified by February 17, 1998. For large multinational companies such as Siemens, converting and insuring compliance with the new regulation will require more than one month to complete. Therefore, it is requested that BXA consider granting the exporting community an interim period of six (6) months where either the new or old provisions can be used, similar to the flexibility granted under the "Reg. Re-write" initiative.

Ms. Muldonian, I respectfully request that you and your colleagues favorably consider these recommendations. Thank you in advance for your consideration of these issues. If you or staff have questions regarding this letter, please contact Neil at (732) 321-3891.

Sincerely,
SIEMENS CORPORATION

R. John Larson
Director, Export Administration Dept.

Neil R. Trenchard
Manager, Export Administration Dept.

WASS3-1

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DUPONT

DuPont Sourcing

February 16, 1998

Ms. Patricia Muldonian
Regulatory Policy Division
Bureau of Export Administration
Department of Commerce
P.O. Box 273
Washington, DC 20044

Attn: Ms. Muldonian

E. I. DuPont de Nemours & Co. would like to submit the following comments with regard to the Interim Rule on the Wassenaar Arrangement List of Dual Use Items.

Since representatives of 33 countries have approved the Arrangement, it seems practicable that those countries should be differentiated on the Commerce Country Chart; even if the U.S. does not choose to treat all member countries equally for all commodities. Maintaining the old A:1 country listing seems to leave unfinished the effort to complete and implement this new regime.

This rule also imposes reporting requirements under License Exceptions: LVS, GBS, CIV, TSR, CTP, and GOV. An exporter should be required to report only when the "dual use" item is not going for a civil or industrial application. Since the goal of the Wassenaar Arrangement is to "enhance transparency and assist in developing common understandings of risks associated with the transfers", this approach would target the unusual transactions, rather than all transactions. CIV specifically should not require any reporting—by its very nature, the end use/end user has been verified. Also, the reporting requirement should apply only to exports to non-Wassenaar member countries. The regulations except only A:1 countries.

WASS 3-2

A comment specific to ECCN 1C210 with regard to "specific tensile strength":
old regs read 23.5 x 10 to the 4th m or greater;
Wassenaar reads 235 x 10 to the 3rd m or greater

old regs read 7.62 x 10 to the 4th m or greater;
Wassenaar reads 76.2 x 10 to the 3rd m or greater.

Is there a reason for this change in measurement? No change was made in related ECCN's 1C010 and 1C990. Consistency in these categories is important.

We appreciate the opportunity to offer these comments.

Very truly yours,

Marcella D. Stewart
Export Control Manager

W1554-1

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February 17, 1998

Ms. Hillary Hess
Director, Regulatory Policy Division
Room 2096
Bureau of Export Administration
United States Department of Commerce
P.O. Box 273
Washington, D.C. 20044

Re: Comments on the Wassenaar Arrangement Interim Regulation

Dear Ms. Hess:

I am writing on behalf of Varian Associates, a manufacturer and exporter of industrial linear accelerators used for non-destructive testing (NDT), **to express our deep concern over BXA's elimination of License Exception eligibility for MT items.**

Varian Associates Inc. has been manufacturing and exporting its brand of industrial linear accelerators (called Linatrons) for over 25 years. We have exported approximately 150 of these machines to destinations all over the world. While this NDT equipment can be used for rocket motor propellant inspection, the vast majority of our customers are using their linear accelerators for a variety of other benign purposes such as inspections of welds, castings and pressure vessels or as cargo-screening machines.

We believe that the recent unexpected change to the regulation is unnecessary because strong protections exist against improper exports of replacement parts to customers engaged in missile sensitive activities in missile countries-of-concern. As you know, the EPCI rules already require exporters like Varian to seek a validated license if we know or suspect our Linatron customer is engaged in missile sensitive activities in a missile country-of-concern. In order to ensure strict compliance with EPCI, many years ago, Varian prepared a detailed customer matrix which lists all our Linatron customers. We use this matrix to carefully screen all incoming orders for parts or service. For example, if a customer is located in Europe (or other non-sensitive country), we know we can supply the parts without obtaining an export license. Conversely, if a customer is located in a country-of-concern for missile proliferation, we likewise know we must secure an export license if the customer is engaged in a missile related activity.

W1554-2

The elimination of License Exception RPL for parts to totally benign customers, such as the Arianne launch site in French Guyana, will result in a terrible hardship for my company as well as our customers. Can you imagine the diplomatic outcry from the French or Italians when their next Arianne rocket launch (of a commercial satellite) is delayed while BXA processes an export license for a critical Linatron replacement part?

In our view, **BXA needs** to quickly and immediately **establish a license free zone for shipments to countries which are members of the MTCR.** Shipments of replacement items to Europe simply should not be hampered by the U.S. government's protracted and complicated license review process. Beyond that, BXA might consider restoring the authority of this License Exception to all countries except those which are of stated concern for missile proliferation (Supplement No. 1 to Part 740, D4 countries).

Given the fact that the Export Administration Act has lapsed, the Executive Branch has the discretion to reinstate this License Exception. We hope you will exercise this option. Thank you for your consideration.

Sincerely,

Carol Henton

Carol Henton
Manager, Export Administration

cc: Raymond Jones - Director, Missile Technology Division
Steve Goldman - Acting Dir., Office of Nuclear & Missile Technology Controls

WAmtcr.doc

WASS 5-1

Ronald O. Baukol
Executive Vice President

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3M

February 17, 1998

Ms. Patricia Muldonian
Regulatory Policy Division
Bureau of Export Administration
U.S. Department of Commerce
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Washington, DC 20044

Re: Docket Number 971006239-7239-01 Interim rule with request for comments. Implementation of the Wassenaar Arrangement List of Dual-Use Items: Revisions to the Commerce Control List and Reporting Under the Wassenaar

Dear Ms. Muldonian:

With the implementation of the Wassenaar Arrangement, 3M understands and supports the U.S. government intent to coordinate export control regulations on a multilateral basis. Furthermore, 3M recognizes that participating countries have committed to exchange information with each other on certain exports of dual-use goods and technologies to countries outside of the Wassenaar Arrangement.

3M supports the reporting requirements for the use of some License Exceptions, especially to the extent that the only alternative would be to require a license for export transactions. This point is significant since 3M businesses are impacted by various ECCNs in the Commodity Control List, including:

1A002	Metal Matrix Composites
1C006	Fluids and Lubricating Materials
1C010	Fibrous and Filamentary Materials
5A001	Telecommunications systems, equipments and components.

The use of License Exceptions greatly facilitates our ability to export controlled 3M products, without any adverse impact on customer service, order cycle time, or inventory levels. 3M typically distributes these materials to its non-U.S.-based subsidiaries and affiliates. The consignees are typically our outside-U.S. subsidiary network. The primary exceptions are 3M shipments of low-value product, shipments for civil end-use, and shipments to Country Group B (low national security risk) countries. 3M also appreciates that there is no such reporting requirement for re-exports.

3M has two requests for adjustments in regulations.

A) It would facilitate the overall export process, both for industry and the U.S. government, if the regulations were amended to recognize all thirty-two member countries of the Wassenaar Arrangement. The country tables currently reflect only COCOM-era controls.

B) 3M believes that certain chemical materials now restricted by control parameters added under ECCN 1C006(d) should be deleted from the list for three reasons.

First, these materials were previously removed from the control list, after much industry input, and coordination with COCOM, almost seven years ago, in September 1991. 3M participated in various government committee meetings and working groups to discuss product chemistry, global markets, and foreign availability (including especially a new production capability at the time in China). The conditions leading to the exclusion of these chemicals from the control list in 1991 still remain today.

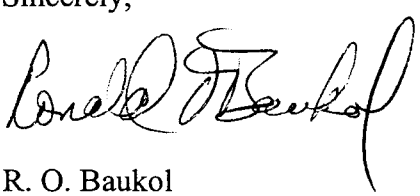
Second, by adding those chemical materials to the CCL, the U.S. has rolled back export control regulations, which was not the intent of the Wassenaar Arrangement.

Third, it seems incongruous to not provide, at minimum, License Exception GBS, for 1C006(d), while there is a provision for low value shipments (by License Exception LVS) up to $1500 per shipment. Indeed, the lack of a reporting requirement for these chemical materials, as is required for previously listed materials, suggests that these materials are not all that strategic in nature. A license exception GBS should be provided.

Finally, we have communicated separately to Mr. Roger Majak, Assistant Secretary of Export Administration, expressing our concern with the saving clause. We suggest a more appropriate deadline for a transition would be April 15, 1998 instead of February 17, 1999 to permit license review and approvals, while minimizing industry disruption.

If more information from 3M is needed, please contact Robert Kimbrel, 3M Center - Building 549-1N-16, St. Paul, Minnesota 55144-3800, telephone 612-737-3236, fax 612-737-4371. Thank you.

Sincerely,



R. O. Baukol
/jl

WASS6-1

Regulations & Procedures Technical Advisory Committee

February 17, 1998

Ms. Hillary Hess
Director, Regulatory Policy Division
Room 2096
Bureau of Export Administration
United States Department of Commerce
P.O. Box 273
Washington, D.C. 20044

Re: Comments on the Wassenaar Arrangement Interim Regulation

Dear ~~Ms. Hess:~~ Hillary

On January 15, 1998, the Export Administration Regulations (EAR) were amended to implement the agreements between the various member countries who participate in the Wassenaar Arrangement (WA). The members of the Regulations and Procedures Technical Advisory Committee (RPTAC) commend BXA for publishing this very important regulation, which will bring export control relief to numerous industries and exporting companies. However, like the revised version of the EAR published in 1996, this Wassenaar Regulation should be seen as a "work in progress." Our comments, therefore, while highlighting some positive aspects of the changes, also identify areas in need of further attention. In addition to key areas of concern expressed in this letter, we are attaching detailed comments which we hope BXA will use in fixing numerous anomalies or inconsistencies.

RPTAC particularly appreciates BXA's acceptance of its earlier recommendation for a savings clause, especially in the revised form extending the date to April 15, which we understand will be published in the February 17 Federal Register.

We very much support the telecommunications revisions eliminating controls on modems, which had resulted in controls on otherwise decontrolled computers. We appreciate the reduction of the number of ECCNs for semiconductor manufacturing equipment (which had been expanded to eight with the 1996 EAR rewrite). This change, along with a decrease in the level of control for test equipment, is welcomed.

RPTAC notes its appreciation for the hundreds of corrections which have been made in the regulation stemming from our comments on earlier drafts. However, much more work remains. The "Supplementary Information" section recognizes that errors were "unavoidably reprinted." As an aid to the correction of continuing (and new) errors, attached please find three documents. The one entitled "Corrections of Errors" gives line-in line-out recommended corrections, together with explanatory comments. The other two, entitled "Over-Coverage, Under-Coverage and Irrationalities" and "Munitions Production Irrationalities" summarize the more significant findings with respect to errors.

We are concerned that License Exception reporting requirements go beyond the Wassenaar commitment in two respects: (1) descriptions of the affected items are broader than those contained in the Wassenaar Annex 1 (sensitive) list; and (2) the requirement applies to exports to Wassenaar participating states who were not COCOM members, such as Russia and South Korea.

In addition, elimination of License Exception eligibility for MT items goes beyond the provisions of the 1991 NDAA amendment to the EAA on which it is based, because descriptions of the MT portions of 70 ECCNs are broader than the corresponding texts in the MTCR Annex. Since both the EAA and its 1991 amendment have expired, the Executive Branch now has discretion, which RPTAC urges be used to: (1) reinstate eligibility for RPL, LVS, and TSR, the lack of which will create severe practical difficulties; and (2) permit exports without a license to other countries which are members of the MTCR regime (as the EAR does, in large part, for the other multilateral regimes).

Elimination of License Exception eligibility for items on the Wassenaar Annex 2 (very sensitive) list also goes beyond the Wassenaar commitment because the list of 16 European countries not affected in TSR (and GOV) revisions omits several Wassenaar participating states (even Japan!) and elimination of LVS applies even to the 16 European countries. While we understand that eliminating License Exceptions for exports of these items to non-Wassenaar participating states stems from a U.S. agreement with the other WA members, we anticipate compliance problems resulting because of the way they are defined in Annex 2.

RPTAC also urges corrections of numerous unexplained instances (identified in the attachments) of lost License Exception or NLR eligibility and of non-conformance with multilateral Wassenaar, MTCR, or NSG texts.

Also, of concern is the transfer of four MT production equipment items to the USML without any indication how the Department of State will (1) incorporate the transferred coverage into the U.S. Munitions List, (2) interpret expressions such as "specially designed," or (3) distinguish between these items and the numerous related items still on

the CCL. If any dual-use munitions production equipment is now construed to be on the USML, the rationale for this transfer is inconsistent with the fundamental purpose of Commerce national security export controls.

We hope that BXA will find these comments and the attachments helpful. The RPTAC feels that it has an ongoing responsibility to work with BXA on the continued implementation of the Wassenaar Arrangement in the United States. I would like to thank those members of the committee who provided helpful input into preparing these comments, in particular Bill Root, Karen Murphy, Dave Calabrese, and Jim Wyatt.

Respectfully submitted;

Carol Henton

Carol Henton
Chair, RPTAC

cc: Members of the RPTAC
Lee Ann Carpenter - BXA

Attachments

rptacwa.doc

Correction of Errors in January 15, 1998, Revision of CCL and Wassenaar Reporting

(~~deletions~~ additions)

732.4(b)(3)(iv) ... or the international safeguards or cooperating governments portions of GOV, ...
(for consistency with the lack of any reference to 743 reporting for the U.S. Government portions of GOV in 740.11(b)(2)(i) and (ii); also see 740.3 and 743.1(b) and (c)(1) below for comment on LVS and further comment on GOV)

738 Supplement Country Chart - remove CC Column 3
(see comment below re 0A984 and 0E984)

740.2(a)(5) ... except that the items described in ECCNs 4A001.a.1, 4A001.a.2.a, 4A101, 6A008, 6A108.a, 7A001, 7A002, 7A003, 7A004, 7A005, 7A006, 7A101, 7A102, 7A103, 7A104, 7A105, 7A106, 7A115, 7A116, 7B001 ...
(for consistency with MTCR 9 Note 1, MTCR 10 Note, MTCR 11 Note 1, and MTCR 13 Note; although several of the underlined ECCNs are marked in the CCL as controlled by DOS, their listing here would be consistent with the listing of those ECCNs in the CCL and, when exported as part of equipment subject to DOC control under 9A120, they should reasonably be considered as subject to DOC control)

~~740.2(c) BXA may by informing the exporter, suspend or revoke any License Exception in order to comply with U.S. Wassenaar obligations. In addition, BXA may inform an exporter, that before using any License Exception, a notice be submitted with BXA concerning the proposed export.~~
(there is no known Wassenaar obligation requiring discontinuation of any License Exception or advance notification before using a License Exception; if and when such an obligation exists, compliance should be accomplished by revising the regulations on a non-discriminatory basis)

740.3 (There is no known error in interpreting Wassenaar Annex 1 to apply to limited value shipments; but it is doubtful that other Wassenaar "participating states" are interpreting it in this manner.)

740.11(a) ~~(2) The following items controlled for national security (NS) reasons ... may not be exported or reexported under this License Exception to destinations other than Austria ... 1C001 ...~~
~~(i) ...~~
~~(ii) "Digital" computers controlled by 4A003.b. and having a CTP exceeding 10,000 MTOPS; and~~
~~(iii) "Electronic assemblies" controlled by 4A003.c. and capable of enhancing~~

~~performance by aggregation of "computing elements" so that the CTP of the aggregation exceeds 10,000 MTOPS; and ,,,~~

~~(iv) ...~~

~~(v) ...~~

~~(vi) ...~~

(2) No computers with a CTP greater than 10,000 MTOPS may be exported or reexported to countries listed in Computer Tiers 3 or 4. See 740.7(d)(1) and 742.12(b)(4)(ii) of the EAR for a complete list of the countries within Computer Tiers 3 and 4.

(3) See 743.1 of the EAR for reporting requirements for exports of certain commodities under the international safeguards portion of License Exception GOV.

(proposed (2) would retain the pre-January 15 text unchanged except to correct the reference to where Computer Tier 3 and 4 country listings can be found; proposed (3) would be consistent with the inclusion of GOV in 743.1(b) and, assuming continuation of that inclusion, should be added to 740.11(a) even if the January 15 740.11(a)(2) text is not otherwise revised, because Wassenaar Annex 1 includes many items not included in Wassenaar Annex 2; Wassenaar does not require the January 15 inclusion of all Wassenaar Annex 2 items in a list of those ineligible for the international safeguards portion of License Exception GOV; if, for other reasons, this must be done, many of the listed items are controlled for more than just national security reasons, the "and" linking each of the sub-parts of 740.11(a)(2)(vi) should be changed to "or" and the list of 16 cooperating countries excluded from this restriction might be in need of review, taking into consideration comment below on the definition of "cooperating country" in part 772)

740.11(b)(2)(iii)(A): Items for official use within national territory by agencies of ~~the U.S. Government~~ a cooperating government. This License Exception is available for all items consigned to and for the offical use of any agency of a cooperating government ...

740.11 Supplement 1 (a) Items for official use within national territory by agencies of ~~the U.S. Government~~ a cooperating government. License Exception GOV is available for all items consigned to and for the offical use of any agency of a cooperating government ...

(besides the above obvious error, Wassenaar does not require the January 15 inclusion of all Wassenaar Annex 2 items in lists of those ineligible for the cooperating government portions of License Exception GOV)

Part 743 Special Reporting

743.1(b) ... License Exceptions GBS, CIV, TSR, LVS, CTP, and the international safeguards and cooperating government portions of GOV
(for consistency with 740.11(b)(2)(iii)(B) and (b)(2)(iv)(B) and the absence of similar provisions in 740.11(b)(2)(i) and (b)(2)(ii); it is highly unlikely that other Wassenaar participating states intend to report exports eligible for License Exceptions LVS or any part of GOV; if deleted here, they should also be deleted from 732.4(b)(3)(iv), 740.3 should revert to its pre-January 15 text, and 740.11(b)(2)(iii)(B) and (b)(2)(iv)(B) should be deleted)

743.1(c)(1)(i) Category 1: 1A002, 1C001, 1C007.c and .d, 1C010.c and .d, 1C010.c and .d, 1D002 (certain items only; see Note 1 to this paragraph), 1E001 (certain items only; see Note 2 to this paragraph), 1E002.e and 1E002.f
Note 1. The reporting requirement is limited to the portion of 1D002 for "software" for the "development" of organic "matrix", metal "matrix" or carbon "matrix" laminates or "composites" listed in this paragraph 743.1(c)(1)(i).
Note 2. The reporting requirement is limited to the portion of 1E001 for "technology" for the "development" or "production" of equipment or materials listed in this paragraph 743.1(c)(1)(i).
(Notes are to conform with Wassenaar Annex 1; if reporting not required for LVS or GOV, 1A002, 1C001, 1C007.c and .d, and 1C010.c and .d should be deleted from this paragraph)

743.1(c)(1)(ii) Category 2: 2B001.a or .b (certain items only; see Note 1 to this paragraph), 2B001.d and .f, 2B003, 2D001 (certain items only; see Note 2 to this paragraph), 2E001 (certain items only; see Note 3 to this paragraph), and 2E002 (certain items only; see Note 4 to this paragraph);
~~Note to paragraph (c)(1)(ii) The following are not controlled for NP reasons: ...~~
Note 1 The reporting requirement is limited to the following portions of 2B001.a or .b:

.a Machine tools for turning, having all of the following characteristics:
1. Positioning accuracy with all compensations available of less (better) than 4 micrometer along any linear axis; and
2. Two or more axes which can be coordinated simultaneously for "contouring control";

b. Machine tools for milling, having any of the following characteristics:
1.a. Positioning accuracy with all compensations available of less better) than 4 micrometer along any linear axis; and
1.b. Three linear axes plus one rotary axis which can be coordinated simultaneously for "contouring control"; or
2. Five or more axes which can be coordinated simultaneously for "contouring control" and have a positioning accuracy with all compensations available of less (better) than 4 micrometer along any linear axis.

Note 2. The reporting requirement is limited to the following portion of 2D001: "Software" specially designed for the "development" or "production" of 2B003, 2B001.d and .f and the

portions of 2B001.a and .b described in Note 1.

Note 3. The reporting requirement is limited to the following portion of 2E001: "Technology" according to the General Technology Note for the "development" of 2B003, 2B001.d and .f, the portions of 2B001.a and .b described in Note 1, and the portion of 2D001 described in Note 2..

Note 4. The reporting requirement is limited to the following portion of 2E002: "Technology" according to the General Technology Note for the "production" of 2B003, 2B001.d and .f, and the portions of 2B001.a and .b described in Note 1

(Notes are to conform with Wassenaar Annex 1; if reporting not required for LVS or GOV, 2B003 and all portions of 2B001 should be deleted from this paragraph)

743.1(c)(1)(iii) Category 3: 3A002.g.2, 3B001.a.2, 3D001 (certain items only; see Note 1 to this paragraph) and 3E001 (certain items only; see Note 2 to this paragraph).

Note 1. The reporting requirement is limited to the following portion of 3D001: "Software" specially designed for the "development" or "production" of 3A002.g.2 or 3B001.a.2.

Note 2. The reporting requirement is limited to the following portion of 3E001: "Technology" according to the General Technology Note for the "development" or "production" of 3A002.g.2 and 3B001.a.2.

(Notes are to conform with Wassenaar Annex 1; if reporting not required for LVS or GOV, 3A002.g.2 should be deleted from this paragraph)

743.1(c)(1)(iv) Category 4: 4A001.a.2 and .b, 4A003.b ~~and .c~~ (see paragraph (c)(2) of this section), 4A003.c (certain items only; see Note 1 to this paragraph), 4D001 (certain items only; see Note 2 to this paragraph), 4D003.c, and 4E001 (certain items only; see Note 3 to this paragraph).

Note 1. The reporting requirement is limited to the following portion of 4A003.c: "Electronic assemblies" specially designed or modified for enhancing performance by aggregation of "computing elements" ("CEs") so that the "CTP" of the aggregation exceeds 4,000 Mtops.

N.B.1. The reporting requirement applies only to "electronic assemblies" and programmable interconections not exceeding 4,000 Mtops when shipped as unintegrated "electronic assemblies".

N.B.2. The reporting requirement does not apply to "electronic assemblies" specially designed for a product or family of products whose maximum configuration does not exceed 4,000 Mtops.

Note 2. The reporting requirement is limited to the following portion of 4D001: "Software" specially designed for the "development" or "production" of 4A001.a.2 and .b, the portion of 4A003.b described in 743.1(c)(2), the portion of 4A003.c described in Note 1, or the portion of 4D001 described in this Note.

Note 3. The reporting requirement is limited to the following portion of 4E001: "Technology" according to the General Technology Note for the "development" or "production" of 4A001.a.2 and .b, the portion of 4A003.b described in 743.1(c)(2), the portion of 4A003.c described in Note 1, or the portion of 4D001 described in Note.2.

(Notes are to conform with Wassenaar Annex 1; if reporting not required for GOV, 4D003.c should be deleted from this paragraph)

743.1(c)(1)(v) Category 5: 5A001.b.8 and b.9 , 5B001 (items specially designed for 5A001.b.8 or b.9,), 5D001.a and .b (certain items only, see Notes 1 and 2), 5E001.a (certain items only, see Note 3), 5A002, 5B002, 5D002, and 5E002.

Note 1. The reporting requirement is limited to the following portion of 5D001.a: "Software" specially designed for the "development" or "production" of 5A001.b.8 and .9 and the portion of 5B001.a specially designed for 5A001.b.8 and .9.

Note 2. The reporting requirement is limited to the following portion of 5D001.b: "Software" specially designed or modified to support "technology" described in Note 3.

Note 3. The reporting requirement is limited to the following portion of 5E001:a: "Technology" according to the General Technology Note for the "development" or "production" of 5A001.b.8 and .9, the portion of 5B001.a specially designed for 5A001.b.8 and .9, and the portions of 5D001.a and .b described in Notes 1 and 2.

(addition of 5A001.b.9 and Notes are to conform with Wassenaar Annex 1; if reporting not required for LVS and GOV, 5A001.b.8 and .9, 5A002, 5B002, 5D002, and 5E002 should be deleted from this paragraph)

743.1(c)(1)(vi) Category 6: 6A001.a.1.b (certain items only; see Note 1), 6A001.a.2.a.1, a.2.a.2, a.2.a.7, .6A001.a.2.c (certain items only; see Note 2), 6A001.a.2.d, ~~and~~ 6A001.a.2.e, 6A001.a.2.f (certain items only; see Note 3), 6A002.a.1.a, a.1.b, a.1.c, 6A002.a.2.a (certain items only, see Note 4), 6A002.a.3 (certain items only; see Note 5), .6A002.b, 6A002.c (certain items only, see Note 6), ~~and~~ 6A002.e, 6A003.b.3 and b.4 (certain items only, see Note 7), 6A004.c and .d, 6A006.g (certain items only; see Note 8) ~~and~~ 6A006.h, 6A008.d, .h, ~~and~~ .k,, and .l.3, 6B008, 6D001 (certain items only; see Note 9), 6D003.a, 6E001 (certain items only; see Note 10), and 6E002 (certain items only; see Note 11).

Note 1. The reporting requirement is limited to the following portion of 6A001.a.1.b: 10 Khz is changed to 5 Khz in 6A001.a.1.b.1 and 6A001.a.1.b.2.

Note 2. The reporting requirement is limited to the following portion of 6A001.a.2.c: real time application.

Note 3. The reporting requirement is limited to the following portion of 6A001.a.2.f: real time application

Note 4. The reporting requirement is limited to the following portion of 6A002.a.2.a: 240 microA/lm changed to 550 microA/lm in 6A002.a.2.a.3.a.

Note 5. The reporting requirement omits the following "focal plane arrays" from 6A002.a.3:

a. Platinum Silicide having less than 10,000 elements;
b. Iridium Silicide;
c. Indium Antimonide or Lead Selenide having less than 256 elements;
d. Indium Arsenide;
e. Lead Sulphide;
f. Indium Gallium Arsenide;

g. Mercury Cadmium Telluride, as follows:

1. 'Scanning Arrays' having any of the following:

a. 30 elements or less; or

b. Incorporating time delay-and-integration within the element and having 2 elements or less;

2. 'Staring Arrays' less than 256 elements;

Technical Notes:

'Scanning Arrays' are defined as "focal plane arrays" designed for use with a scanning optical system that images a scene in a sequential manner to produce an image.

'Staring Arrays' are defined as "focal plane arrays" designed for use with a non-scanning optical system that images a scene.

h. Gallium Arsenide or Gallium Aluminum Arsenide quantum well having less than 256 elements;

i. Pyroelectric or Ferroelectric (including barium-strontium titanate, lead zirconate titanate or lead scandium titanate) having less than 8,000 elements;

j. Vanadium Oxide-Silicon nitride microbolometer having less than 8,000 elements.

Note 6. The reporting requirement is limited to the following portion of 6A002.c: the reference to 6A002.a.2.a in 6A002.c.1 is as limited in Note 4 and the reference to 6A002.a.3 in 6A002.c.2 is as limited in Note 5.

Note 7. The reporting requirement is limited to the following portion of 6A003.b.3 and b.4: reference to 6A002.a.2.a in 6A003.b.3 is as limited in Note 4 and the reference to 6A002.a.3 in 6A003.b.4 is as limited in Note 5.

Note 8. The reporting requirement omits the following portion of 6A006.g: compensators which provide only absolute values of the earth's magnetic field as output (i.e., the frequency bandwidth of the output extends from DC to at least 0.8 Hz).

Note 9. The reporting requirement is limited to the following portion of 6D001: "Software" specially designed for the "development" or "production" of the portions of 6A004, 6A008, or 6B008 described in this paragraph 743.1(c)(1)(vi).

Note 10. The reporting requirement is limited to the following portion of 6E001: "Technology" according to the General Technology Note for the "development"of the portions of 6A001 to 6A004, 6A006, 6A008, 6B008, 6D001, and 6D003 described in this paragraph.743.1(c)(1)vi)

Note 11. The reporting requirement is limited to the following portion of 6E002: "Technology" according to the General Technology Note for the "production" of the portions of 6A001 to 6A004, 6A006, 6A008, or 6B008 described in this paragraph.743.1(c)(1)(vi).

743.1(c)(1)(vii) Category 7: 7D002, 7D003.a, .b, .c, and d.1 to .4 & .7, 7E001, and 7E002 (for consistency with Wassenaar; if reporting not required for LVS and GOV, this paragraph would be deleted.)

743.1(c)(1)(viii) Category 8: 8A001.b, .c, and .d, 8A002.b (certain items only; see Note 1 to this paragraph), 8A002.h, .j, ~~.0.3.a~~, .0.3, and .p, 8D001 (certain items only; see Note 2 to this paragraph), 8D002, 8E001 (certain items only; see Note 3 to this paragraph), and

8E002.a; and

Note 1. The reporting requirement is limited to the following portion of 8A002.b: reference to 8A001 in 8A002.b is limited to 8A001.b, .c, and .d.
Note 2. The reporting requirement is limited to the following portion of 8D001: "Software" specially designed for the "development" or "production" of the portions of 8A001 and 8A002 described in this paragraph 743.1(c)(1)(viii)..
Note 3. The reporting requirement is limited to the following portion of 8E001: "Technology" according to the General Technology Note for the "development" or "production" of the portions of 8A001 and 8A002 described in this paragraph 743.1(c)(1)(viii).
(for consistency with Wassenaar; if reporting not required for LVS and GOV, 8A001, 8A002, and 8D001 would be deleted from this paragraph.)

743.1(c)(1)~~(viii)~~(ix) Category 9: 9A011, 9B001.b, 9D001 (certain items only; see Note 1 to this paragraph), 9D002 (certain items only; see Note 2 to this paragraph), 9D004.a and .c, 9E001 (certain items only; see Note 3 to this paragraph), 9E002 (certain items only; see Note 4 to this paragraph), 9E003.a.1, .a.2, .a.3, .a.4, .a.5, .a.8, and .a.9

Note 1. The reporting requirement is limited to the following portion of 9D001: "Software" specially designed or modified for the "development" of 9A011, 9B001.b, and the portions of 9E001, 9E002, and 9E003 described in this paragraph.
Note 2. The reporting requirement is limited to the following portion of 9D002: "Software" specially designed or modified for the "production" of 9A011 or 9B001.b.
Note 3. The reporting requirement is limited to the following portion of 9E001: "Technology" according to the General Technology Note for the "development" of 9A011, 9B001.b, the portion of 9D001 described in Note 1, or the portion of 9D002 described in Note 2..
Note 4. The reporting requirement is limited to the following portion of 9E001: "Technology" according to the General Technology Note for the "production" of 9A011 or 9B001.b,
(for consistency with Wassenaar; although 9A011 is controlled by DOS, it is included here for information purposes, since it is included on the CCL; if reporting not required for GOV, this paragraph would be deleted except for 9B001.b)

743.1(d) ... except for exports to ~~countries identified in Country Group A:1 (see Supplement No. 1 to part 740 of the EAR)~~ Wassenaar "participating states".
(Country Group A:1 does not include all "participating states"; other Wassenaar members are interpreting Annex 1 as being limited to exports to non-"participating states")

746.8(b)(1)(ii) ... ECCNs 1A005, ... 0A982 ,,, ~~0A988~~. ...

Part 772 Definitions

Australia Group. ... dual use chemicals~~, i.e.,~~ weapons precursors~~,~~ and related equipment~~,~~ and biological microorganisms and related equipment, in order to prevent the proliferation of chemical and biological weapons.

Cooperating country. A country that cooperated with the former COCOM member countries (listed in Country Group A:1 in 740 Supplement 1) in restricting strategic exports in accordance with COCOM standards. The "Cooperating Countries" are: Austria, Finland, Hong Kong, Ireland, Korea (Republic of), New Zealand, Sweden and Switzerland. The governments of Argentina, Singapore, and Taiwan are also considered to be cooperating for purposes of License Exception GOV in 740.11(b)(3)(ii).

(Further revision of this definition is needed. There are now at least twelve different lists of cooperating countries:

(1) The eight listed in the above definition and identified by a footnote 1 on the Country Group A page of 740 Supplement 1

(2) 27 per 740.11(b)(3)(ii) (which adds the 16 in Country Group A:1 plus Argentina, Singapore, and Taiwan)

(3) a different 27 in Computer Tier 1(which adds Holy See, Iceland, Liechtenstein, Mexico, Monaco, and San Marino and subtracts Argentina, Canada, Hong Kong, Korea, Singapore, and Taiwan)

(4) 16 per Country Group A:1, cited, *inter alia*, in new 743.1(d)

(5) 18 per RS Column 2 (A:1 plus Iceland and New Zealand)

(6) 24 per NS Column 2 (A:1 plus Austria, Finland, Hong Kong, South Korea, New Zealand, Sweden, and Switzerland)

(7) Yet a different 27 per MTCR Country Group A:2 (A:1 plus Argentina, Austria, Brazil, Finland, Hungary, Iceland, Ireland, New Zealand, Russia, South Africa, Sweden, Switzerland minus Turkey)

(8) 20 nuclear per 744 Supp. 3 (A:1 plus Holy See, Iceland, New Zealand, and San Marino)

(9) 32 nuclear per NP Column 1 (NS Column 2 plus Argentina, Brazil, Bulgaria, Czech Republic, Hungary, Poland, Romania, Russia, Slovakia, South Africa, Ukraine minus Australia, Hong Kong, and Turkey)

(10) 31 nuclear per NSG Country Group A:4 (NP Column 1 minus Ukraine)

(11) 29 Australia Group Country Group A:3 (A:4 plus Iceland minus Bulgaria, Russia, and South Africa)

(12) a different 16 per new 740.11(a)(2) and 740.11 Supplement 1 (a)(1) (A:1 plus Austria, Finland, Ireland, and Sweden minus Australia, Japan, Norway, and Turkey)

There may be no way to avoid four lists, i.e., one for each multilateral regime. But there is no apparent need for 12 different lists.)

License Exception. An authorization described in parts 740, 744, 746, or 754 ...

"Missile propulsion components or equipment." (Cat 9) - means items controlled by 9A001, 9A101, 9A011, 9A111, 9A118, 9A106.a and .b, 9A108.a and .b, 9A117, 9A106.d, and 9A109 for MT reasons

"Missile subsystems." means items controlled by 9A119, 9A116, 9A105.a, 9A007.a, 7A117, 9A106.c, 9A108.c plus weapon or warhead safing, arming, fuzing, and firing mechanisms "usable in"

“missiles”

"Other rocket subsystems." (Cat 9) - means items controlled by 9A119, 9A107, and 9A105.b

"Other rockets." (Cat 9) - Complete rocket systems other than "missiles" (including ballistic missile systems, space launch vehicles and sounding rockets) and unmanned air vehicles (including cruise missile systems, target drones and reconnaissance drones and items controlled by 9A120) capable of a maximum range equal or superior to 300 km.

"Participating state" (7, 9) means a participant state in the Wassenaar arrangement, namely, ...

"Production equipment." (MTCR context) (Cat 7 and 9) - Tooling, templates, jigs, mandrels, molds, dies, fixtures, alignment mechanisms, test equipment, other machinery and components therefor, limited to those specially designed or modified for "development" or for one or more phases of "production."

"Production facility." (MTCR context) (Cat 7 and 9) - Equipment and specially designed software therefor integrated into installations for "development" or for one or more phases of "production."

"Radiation-hardened" (MTCR context) - The component or equipment is designed or rated to withstand radiation levels which meet or exceed a total irradiation dose of 5×10^5 rads (Si).

"Required" - as applied to “technology” ~~or "software"~~ refers to only that portion of “technology” ~~or “software”~~ which is peculiarly responsible for achieving or ~~extending~~ exceeding the controlled performance levels, characteristics or functions. Such “required” “technology” ~~or “software”~~ may be shared by different products. ... If technologies “A”, “B”, “C”, “D”, and “E” are used together, a manufacturer can produce product “X” that does ~~not~~ operate at or above 400 MHz.

Returned Without Action (RWA). An application may be RWA'd for one of the following reasons:

(a) The applicant has requested the application be returned;

(b) A License Exception or no license required ("NLR") applies;

(c) ~~The items are not under Department of Commerce jurisdiction~~ The transaction is not subject to the EAR; or

~~(d) Required documentation has not been submitted with the application; or~~

~~(e)~~(d) The applicant cannot be reached after several attempts to request additional information necessary for processing of the application.

Part 774 Commerce Control List (CCL)

Insert at beginning of CCL:

Equipment specially designed for medical end-use that incorporates an ECCN xx0xx other

than xx018 is not controlled by that ECCN
(to conform with Wassenaar Statement of Understanding)

0A002 Power generating or propulsion equipment specially designed for use with space, marine or mobile "nuclear reactors". ~~(These items are subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls. See 22 CFR Part 121.)~~

Related Controls: Power generating or propulsion equipment specially designed for use with space "nuclear reactors" are subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls. See 22 CFR Part 121 Category XV(e).

(the only basis for USML jurisdiction is Category XV(e) equipment associated with spacecraft.

0A018 Related Controls: ~~N/A~~ Military helmets equipped with communications hardware, optical sights, slewing devices or mechanisms to protect against thermal flash or lasers are controlled by the U.S. Department of State, Office of Defense Trade Controls (See 22 CFR part 121, Category X(a)).

~~a. Power controlled search lights and control units therefor, designed for military use, and equipment mounting such units; and specially designed parts and accessories therefor;~~
b. Construction equipment ~~built to military specifications,~~ specially designed for ~~airborne transport~~ military use, and specially designed ~~parts and accessories~~ components therefor;
~~c. Specially designed components and parts for ammunition, except cartridge cases, powder bags, bullets, jackets, cores, shells, projectiles, boosters, fuses and components, primers, and other detonating devices and ammunition belting and linking machines (all of which are subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls. (See 22 CFR parts 120 through 130.)~~
~~d. Bayonets~~
~~e. Muzzle-loading (black powder) firearms~~
~~Note Antique small arms dating prior to 1890 and their reproductions are not controlled by this ECCN 0A918.~~
f. Standard ~~M~~military helmets~~, except:~~
~~1. Conventional steel helmets other than those described by 0A918.f.2. below.~~
~~2. Helmets, made of any material, equipped with communications hardware, optional sights, slewing devices or mechanisms to protect against thermal flash or lasers.~~
~~Note Helmets described in 0A918.f.1. are controlled by 0A988. Helmets described in 0A918.f.2. are controlled by the U.S. Department of State, Office of Defense Trade Controls (See 22 CFR part 121, Category X).~~

(re deletion of a., d. and e., searchlights, bayonets, and muzzle-loading firearms are not on the Wassenaar ML;
re b., revisions are to conform with Wassenaar ML 17.b.;
c. should be deleted since "cartridge cases, powder bags, bullets, jackets, cores, shells, projectiles, boosters, fuses and components, primers, and other detonating devices" in USML Category III(b) is

preceded by "including but not limited to", with the result that the USML controls all ammunition components and parts;
USML control of ammunition belting and linking machines is unrelated to controls on ammunition components and parts (see proposed Related Controls under 9B018 below);
re f., military helmets "excluding standard military helmets" are on the USML Category X(a) and Wassenaar ML 13.c. controls all "Military helmets";
USML refers to "optical sights", not "optional sights")

0A982 ... ~~conventional steel military helmets~~ ...
(Wassenaar ML 13.c. controls "Military helmets";
0A018 controls all military helmets not controlled by the USML)

0A984 CC applies to shotguns with a barrel length over 18 in. (45.72 cm) but less than 24 in. ... CC Column 1

CC applies to shotguns with a barrel length over 24 in. (60.96 cm) if for sale or resale to police or law enforcement ~~CC Column 3~~ CC Column 1

CC applies to shotguns with a barrel length over 24 in. (60.96 cm), ~~regardless of end-user~~ if for sale or resale to other than police or law enforcement CC Column 2

(there is no portion of ECCN 0A984 for which it is intended to require a license to CC Column 3, i.e., more restrictive to TV, less NATO, Australia, New Zealand and Japan, than to QSYZ and Rwanda; CC Column 3 should be removed from the Country Chart.)

~~0A988~~ ~~Conventional military steel helmets as described by 0A018.f.1; and machetes~~.
(Wassenaar ML 13.c. controls "Military helmets";
therefore, 0A018 controls all military helmets not controlled by the USML;
machetes are controlled by 0A982)

~~Note: Exports from the U.S. and transhipments to Iran must be licensed by the Department of Treasury ...~~
(such a Note for just a few ECCNs is misleading, since it applies to all ECCNs)

0B008 Delete and substitute:
Simulators and ultrasonic or eddy current test equipment specially designed for “nuclear reactors”. (These items are subject to the export licensing authority of the Nuclear Regulatory Commission. See 10 CFR Part 110.8(a).)
(NRC controls equipment specially designed or prepared for nuclear reactors.)

0D001 ... except 0A980, 0A982, 0A983, 0A984, 0A985, 0A986, and 0B986
(EU item should not be used for unilateral controls)

Related Controls: (1) “Software” for items controlled by ... 0B008 ... ~~are~~ is subject to the export licensing authority of the Nuclear Regulatory Commission ... (2) “Software” for items controlled by the portion of

0A002 described under Related Controls in that ECCN ~~are~~ is subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls ...

0D018 "Software" specially designed or modified for the "development, "production" or "use" of equipment controlled by 0A018.b or f
(to conform with Wassenaar ML 21)

0E001 ... except 0A980, 0A982, 0A983, 0A984, 0A985, 0A986, and 0B986
(EU item should not be used for unilateral controls)

0E001 Related Controls: (1) "Technology" for items controlled by ... 0B008 ... ~~are~~ is subject to the export licensing authority of the Nuclear Regulatory Commission ... (2) "Technology" for items controlled by the portion of 0A002 in that ECCN described under Related Controls is subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls (See 22 CFR Part 121 Category XV(g)

0E018 "Technology" according to the General Technology Note for the "development", "production" or "use" of items controlled by 0A018.b ~~through 0A018.e~~ or 0A018.f
(to conform with Wassenaar ML 22 and with the Wassenaar ML GTN, which is substantially the same as the Wassenaar Dual-Use List and CCL GTN)

0E984 "Technology", according to the General Technology Note, for the "development" or "production" of shotguns controlled by 0A984, shotgun shells controlled by 0A986, ~~and~~ or buckshot shotgun shells.
(omission of coverage of technology for controlled shotgun shells, while covering technology for uncontrolled buckshot shotgun shells is probably inadvertent)

CC applies to technology for shotguns with a barrel length over 18 in. (45.72 cm) but less than 24 in. ... CC Column 1

CC applies to technology for shotguns with a barrel length over 24 in. (60.96 cm) if for sale or resale to police or law enforcement ~~CC Column 3~~ CC Column 1

CC applies to technology for shotguns with a barrel length over 24 in. (60.96 cm), ~~regardless of end-user~~ if for sale or resale to other than police or law enforcement CC Column 2

(there is no portion of ECCN 0E984 for which it is intended to require a license to CC Column 3, i.e., more restrictive to TV, less NATO, Australia, New Zealand and Japan, than to QSYZ and Rwanda; CC Column 3 should be removed from the Country Chart.)

1A002 NS applies to entire entry ~~except finished or semifinished items specially designed for purely civilian applications as follows: sporting goods, automotive industry, machine tool industry, and medical applications~~
(see Related Controls revision)

MT applies to "composite" structures or laminates that are specially designed for use in "missiles" or "missile subsystems"
(to conform with MTCR 8.a; a new definition of "missile subsystems" would conform with MTCR 2)

Related Controls: ... (2) This entry does not control (a) ... (b) finished or semifinished items specially designed for purely civilian applications as follows: sporting goods, automotive industry, machine tool industry, and medical applications. (3) The MT portion of 1A002 is subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls (see 22 CFR Part 121).
(moving the exception from "NS applies" to "Related Controls" is to conform with Wassenaar and EU; the numbering of 1A102 indicates that 1A002 and 1A102 overlap; it would therefore be reasonable to provide in 1A002 that the portion thereof also described in 1A102 is MT and is subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls)

1A005 UN ... ~~The Commerce Country Chart is not designed to determine licensing requirements for this entry.~~ See part 746 of the EAR for additional information.

Related Controls: ... (4) See part 746.8(b)(1) for additional licensing requirements concerning this entry.

(there is an X in NS Column 2 for Rwanda in the Commerce Country Chart; the reference to 746.8 indicates an intent to add 1A005 to 746.8(b)(1)(ii))

1A102 Resaturated pyrolized carbon-carbon materials designed for rocket systems and "usable in" "missiles"
(to conform with MTCR 8.b.)

1A984 Related Controls: ~~N/A~~ Also see ECCNs 1C350 and 1C995. Chemical agents for chemical warfare purposes and tear gas containing more than 1 percent CS or CN are subject to the export licensing authority of the Department of State, Office of Defense Trade Controls (see 22 CFR 121.1 Category XIV(a)

1B001 MT applies to ~~entire entry except 1B001.d.4. and .f.~~ the following for the production of structural "composites" "usable" in "missiles": 1B001.a., b. except tow placement machines, c., d.1-3., and e.
(MTCR 6 is limited to equipment for the production of structural composites usable in "missiles"; MTCR 6.b. does not cover 1B001.b. tow-placement machines)

NP applies to ... ~~and coordinating and programming controls and precision mandrels for these filament winding machines~~
(1B001 covers neither coordinating and programming controls nor precision mandrels)

~~1B018~~ ~~Equipment on the International Munitions List~~
~~a.~~ ~~Equipment for the "production" of military explosives and solid propellants ...~~
~~b.~~ ~~Environmental chambers ...~~
(for comment, see 9B018)

1B101 Equipment, other than that controlled by 1B001, for the production of structural "composites" "usable in" "missiles", as follows, and specially designed components and accessories therefor
(MTCR 6 is limited to equipment for the production of structural composites usable in "missiles")

NP applies to portion of 1B101.a ~~only~~ also described in 1B201
(NSG 3.4 is limited to machines which "are" coordinated, rather than "can be" coordinated, and to machines capable of winding rotors of specified diameter and length)

1B115 "Production ~~E~~equipment" not controlled by 9B018 for the "production", handling and acceptance testing of liquid propellants or propellant constituents controlled by the MT portion of 1C011~~,~~ or by 1C111 ~~or on the U.S. Munitions List~~ or for the "production", handling, mixing, curing, casting, pressing, machining, extruding, or acceptance testing of solid propellants or propellant constitutents controlled by the MT portion of 1C011 or by 1C111 and specially designed components therefor.
(for consistency with MTCR 5; the MTCR definition of "production equipment" should be added to part 772; some such equipment is controlled by IML 18, proposed 9B018)

Related Controls: (1) ... (b) ... ~~kneeding~~ kneading ... ~~(2) For equipment specially designed for the production of military propellants or propellant consistuents (sic), see the U.S. Munitions List.~~ (3) This entry does control ~~equipment for the "production", handling and acceptance testing of boron carbide~~ (a). equipment for the production of atomized or spherical metallic powder in a controlled environment and (b) Fluid energy mills for grinding or milling ammonium perchlorate, RDX, or HMX.

..

(in the past, the CCL, rather than the USML, has controlled equipment for the production of propellants or propellant constituents on the USML; there is no item on the USML which could be interpreted to cover this equipment except perhaps the vague catch-all Category XXI "any article ... specifically designed or modified for military purposes"; since the MTCR definition of "production equipment" is limited to equipment "specially designed or modified,." the USML must cover either all or none of 1B115; MTCR 5 does not control equipment for boron carbide; proposed revised Related Controls (3) is for consistency with MTCR 5 Note (2))

1B231 Tritium facilities, plants ~~and~~ or equipment
Related Controls: ~~This entry does not control tritium, tritium compounds, and mixtures containing tritium, or products or devices thereof. See 10 CFR part 110 for ytritium subject to the export licensing authority of the Nuclear Regulatory Commission.~~ See 1C235

1C001 MT applies to ~~entire entry~~ items controlled by 1C001 for applications "usable in" "missiles" or "missile subsystems"
(to conform with MTCR 17 heading; a definition of the term "missile subsystems" should be added to part 772 to conform with MTCR 2, no more and no less)

1C007 MT applies to ~~items in 1C007.d and .f when the dielectric constant is less than 6 at frequencies from 100 Hz to 10,000 MHz) for use in missile radomes~~ portion of 1C007.d or .f also described in 1C107.

(MTCR 8.d. contains other limits not in 1C007.d or .f, namely usable in "missiles" and "for use in missile radomes, and bulk machinable silicon-carbide reinforced unfired ceramic usable for nose tips.")

1C010 NP applies to ... "fibrous ~~and~~ or filamentary materials" ... "fibrous ~~and~~ or filamentary materials" ...

MT applies to portion of 1C010.e also described in 9A110
(1C010.e and 9A110 ovelap)

Related Controls: ... material not controlled by 1C010.e~~, as defined by technical notes 1 or 2. Note that some items in 1C010.e are also controlled under 9A110~~.
(Notes describing what 1C010.e does not control are not “technical notes.” There are other materials not described in the two decontrol notes which are not controlled by 1C010.e because below the e.1 or e.2 thresholds which might be covered by 9A110. But no material should be controlled by both items. This should be avoided by adding to 9A110 “not controlled by 1C010" as is customary for other MT items which would otherwise overlap Wassenaar items.)

1C011 MT applies to 1C011.a and the following portion of .b: metal fuels consisting of 97 percent by weight of boron.

1C018 ~~Materials on the International Munitions List~~ Military explosive additives
delete sub-items a-j, m, o
(the only portions of 1C018 which are on the Wassenaar ML are k. and l. (ML 8.e.3. and 8.e.24.) and, by implication, n;
re n., ML 8 Note 5.o excludes hydrogen peroxide only in concentrations of less than 85% and USML 121.14(d) controls only in excess of 85%;
re m, Guanidine nitrate is covered by 1C011.c.

1C101 ... ~~and their subsystems~~ or "missile subsystems"
(MTCR 17 limits the relevant subsystems to those listed in MTCR 2)

1C107 Graphite and ceramic materials “usable in” "missiles,"
(for consistency with heading of MTCR 8)

1C111 Related Controls: The following ~~materials, whether or not encapsulated in aluminum, beryllium, magnesium, or zirconium~~ sub-items or parts thereof are subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls (see 22 CFR part 121): a.1, b.1, b.2, ~~(a) Spherical aluminum powder ... (b) Metal in particle sizes ...~~ b.3 and b.4 with content of 99% or more of the specified metal(s), b.5, c.1, d.1.d, d.1.e. except chlorine trifluoride, d.2.a, d.2.b, d.2.c, e.2, e.3, f.1.a, f.1.b, f.1.c, f.1.d, f.1.e, f.2.a, f.3.a, f.3.b, f.3.d, f.3.e, f.4.c, f.5.b.
(for consistency with 22 CFR 121.12(a)(1, 2, 3, 4, 6, 7, 8, 19, 20, 25, 26, 31, 32, 34), (b)(1, 3, 6, 14, 16, 17, 21, 28, 31), and (f)(1) plus an assumption that a.1, b.5, e.3, and f.1.e are also USML controlled; note that chlorine trifluoride, which is explicitly excepted from 121.12.a.6 was not listed in 1C111 as of 1/15/98 and that HTPB which was so listed as subitem b.2 is covered by 121.12.a.34)

Items: Delete in their entirety and replace with the MTCR 4 list.
(ECCN 1B115 coverage will be imprecise without this change)

~~Note: For propellants and constituent chemicals for propellants not controlled by 1C111, see the U.S. Munitions List.~~
(per above, 1C111 would list MTCR items on the USML)

1C116 Maraging steels (steels generally characterized by ...) "usable" in "missiles" having ...
("usable in" "missiles" is to conform with MTCR 8 heading)

1C117 Tungsten, molybdenum, and alloys of these metals "usable in" "missiles" in the form of ...
(to conform with MTCR 8 heading)

1C235 Control(s): ... except products or devices containing tritium in which the ratio of tritium to hydrogen by atoms exceeds 1 part in 1000 except a product or device containing not more than 1.48×10^3 GBq (40 Ci) of tritium in any form
(although NRC controls tritium contained in products or devices, it does not control the products or devices which contain the tritium)

1C350 a.22 ~~Ethylphosphonus~~ Ethylphosphonous ...

1C351 Related Controls:
1.) Biological agents are subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls (see 22 CFR part 121 Category XIV(b)).
2.) All vaccines and "immunotoxins" are excluded from the scope of this entry. See ECCN 1C991.

1C352 Related Controls:
1.) Biological agents are subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls (see 22 CFR part 121 Category XIV(b)).
2.) All vaccines and "immunotoxins" are excluded from the scope of this entry. See ECCN 1C991.

1C353 Related Controls:
1.) Biological agents are subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls (see 22 CFR part 121 Category XIV(b)).
2.) All vaccines are excluded from the scope of this entry. See ECCN 1C991.

1C354 Related Controls:
Biological agents are subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls (see 22 CFR part 121 Category XIV(b)).
~~All vaccines are excluded from the scope of this entry. See ECCN 1C991.~~

1C982 LVS: $2,000

1C983 LVS: $2,000

1C984 LVS: $2,000

1C990 Fibrous ~~and~~ or filamentary materials ...

1C991 Vaccines containing 1C351, 1C352, or 1C353 ~~and 1C354~~
(1C354 would not contain a vaccine exception, if revised to conform with Australia Group Annex 4)

1D001 NP applies to "software" specially designed for the ~~"development, "production" or~~ "use" of items controlled by 1B001 for NP reasons.
(NSG 3.4 does not control software "modified" for that purpose; EU interprets "software therefor" in NSG 3.4 to be limited to "use" software)

1D002 MT applies to ~~"software" specially designed or modified for the "development" of "composites" controlled by 1A, 1B, or 1C entries for MT reasons~~ the portion of 1D002 also described in 1D101
(MTCR 6 software is limited to that specially designed for 1B101 equipment; MTCR 8.a. does not cover software)

NP applies to the portion of 1D002 specially designed for the "use" of the portions of 1B001, 1B101, or 1B201 for NP reasons
(NSG 3.4 covers software specially designed for filament winding machines)

1D018 "Software" specially designed or modified for the "development, "production" or "use" of items controlled by ~~1B018~~ 1C018
(to conform with the proposed transfer of 1B018 to 9B018 and with Wassenaar ML 21 coverage of software for the proposed retained portion of 1C018)

1D101 NP applies to "software" specially designed for the "use" of items controlled by 1B101 for NP reasons

~~1D102 Other "software" ...~~
(EU has no such item; other CCL items cover Category 1 MTCR software)

1D201 "Software", other than that controlled by 1D001, or 1D101, specially designed for the "use" of goods controlled by 1B201

NP applies ... 1A202, ... ~~1C001,~~ ... 1C116, ... for NP reasons
(NSG 2.8.d. covers 1A202; there is no NP coverage in 1C001; part of 1C116 is controlled for NP reasons)

1E001 ... of items controlled by ...1A005, ~~1A102,~~ 1B or 1C (except 1C018, ...)
(EU 1E001 does not control technology for 1A102 nor for munitions list items; there should be a separate 1E018 for "use" as well as "development" and "production" of IML items)

NS applies to “technology” for items controlled by ... ~~1B018, 1B225,~~ 1C001 to ~~1C010~~ 1C012, ~~1C018, 1C230, 1C231, 1C233, or 1C234~~
(for consistency with Wassenaar)

MT applies to "technology" for items controlled by 1A002, 1B001, ... for MT reasons.

NP applies to "technology" for items controlled by 1A002, 1B001, 1B101, 1B201, 1B225 to 1B232, ~~1C001,~~ 1C010, 1C116, 1C202, 1C210, 1C216, 1C225 to ~~1C234, 1C236 to~~ 1C238 for NP reasons
(1C001 is not a nuclear item; a portion of 1C116 is covered by NSG 2.12; 1C235 is controlled by NSG)

TSR: Yes, except MT ~~and for exports ...~~
(there is no known Wassenaar obligation to qualify TSR for 1E001 by more than a reporting requirement for the Annex 1 portion thereof)
Related Controls: (1) See also 1E101 and ~~1E210~~ 1E201. (2) “Technology” for items controlled by the NRC portion of 1C235 ...

1E002 MT applies to portion of 1E002.e applicable to MT portion of 1C001

1E018 "Technology" according to the General Technology Note for the "development", "production" or "use" of items controlled by 1C018
(to conform with Wassenaar ML 22)

1E101 "Technology" ... for the "use" of items controlled by 1A002, 1A102 ... 1C007, 1C010, ... for MT reasons
(portions of 1A002 and 1C010 are controlled for MT reasons; only portions of 1B001, 1C001, 1C007, and 1C011 are controlled for MT reasons)

NP applies to 1A002, 1B001.a ~~and~~ , 1B101, and 1C116 for NP reasons
(portions of 1A002 and 1C116 are covered by NSG;
only a portion of 1B001.a is covered by NSG 3.4)

1E102 ... for MT reasons
(MT covers only a portion of 1D001)

1E201 ... goods controlled by 1A002, 1A225 to 1A227, 1B001.a, 1B101, 1B201, 1B225 to 1B233, 1C002.a.2.c or .d, 1C010~~.b~~, 1C116, 1C202, 1C210, 1C216, 1C225 to 1C240, 1D001, 1D002, 1D101 or 1D201 for NP reasons
(NSG covers parts of 1B001.a, 1B101, 1C116, 1D001, 1D002, 1D101; NSG covers parts of 1C010 other than 1C010.b; only a portion of 1A002 is covered by NSG)

1E994 "Technology" according to the General Technology Note ...
(without some modifier, such as according to the GTN, there is no criterion to determine what technology is controlled)

2.A. Systems, Equipment~~, Assemblies~~ and Components

2A226 Valves ~~not controlled by 0B001~~ ...

Related Controls: Valves specially designed or prepared for separation of isotopes or uranium are ~~also~~ subject to the export licensing authority of the Nuclear Regulatory Commission. (See ~~10 CFR 110~~ ECCN 0B001.b.1 and d.6)

2A290 Generators and other equipment not controlled by 0A002 specially designed, prepared, or intended for use with nuclear plants, as follows:

Related Controls: (1) ~~Nuclear e~~Equipment specially designed or prepared for nuclear reactors is ~~also~~ subject to the export licensing authority of the Nuclear Regulatory Commission. (See 10 CFR part 110.8.a) (2) Power generating or propulsion equipment specially designed for use with military or space nuclear reactors is under the export licensing jurisdiction of the U.S. Department of State, Office of Defense Trade Controls. (See 22 CFR part 121)
(2A290 equipment intended but not specially designed or prepared is not "also" subject to NRC jurisdiction)

2A291 Equipment related to nuclear material handling and processing and to nuclear reactors, as follows

Related Controls: ~~Nuclear e~~Equipment specially designed or prepared for nuclear reactors and assemblies or components specially designed or prepared for plants for the reprocessing of irradiated nuclear reactor fuel elements ~~is also~~ are subject to export licensing authority of the Nuclear Regulatory Commission.
(NRC does not "also" control process control systems intended but not specially designed or prepared for nuclear reactors)

c. ...~~except items licensed by the Nuclear Regulatory Commission, pursuant to 10 CFR part 110~~
(Related Controls rewrite would more clearly explain NRC jurisdiction, which is not limited to items actually licensed)

2A292 ... chromium, as follows:

Unit: ... parts ~~and accessories~~ in $ value

Related Controls: Piping, fittings, and valves specially designed or prepared for the separation of the isotopes of uranium are ~~also~~ subject to export licensing authority of the Nuclear Regulatory Commission (See 10 CFR part 110.8.b)

~~2A290~~ 0A290 (2A290 is closely related to 0A002)
~~2A291~~ 0A291 (2A291 is closely related to 2A290)
~~2A292~~ 0A292 (2A292 is closely related to 2A290)

2A991 ... , as follows:

2B001 Machine tools, as follows, and ...

NP applies to ~~2B001.a,b,c,d Except ...~~
(1) machine tools for turning having 2B001.c.1.a and c.1.b.5.b.2 characteristics and capable of machining diameters greater than 35 mm excluding bar machines (Swissturn) limited to machining only bar feed through if maximum bar diameter is equal to or less than 42 mm and there is no capability of mounting chucks provided that machines may have drilling and/or milling capabilities for machining parts with diameters less than 42 mm,
(2) milling machines having either 2B001.c.1.b.5.b.2 or c.1.a characteristics excluding machines having both X-axis travel greater than 2 meters and overall "positioning accuracy" on the x-axis more (worse) than 0.030 mm;
(3) machine tools for ginding having either 2B001.c.1.b.5.b.1 or c.1.b.1 characteristics excluding those having Note 1.b-e or Note 2.a or Note 3.a characteristics or crankshaft or camshaft grinding machines; and
(4) 2B001.c.3 non-wire electrical discharge machines

(a positive list is clearer than a negative list)

Unit: Equipment in number; ~~parts and accessories~~ components in $ value

2B003 Unit: Equipment in number; ~~parts~~ components, controls, and accessories in $ value

2B004 MT applies to ~~entire entry~~ portion of 2B004 also described in 2B104
(MTCR 7.c., unlike 2B004, is limited to equipment designed or modified for densification and pyrolysis of structural composite rocket nozzles and reentry vehicle nose tips.)

NP applies to ~~entire entry except 2B004.b.3 and presses with temperatures exceeding 1,733K, and pressure below 69 MPa~~ portion of 2B004 also described in 2B204
(2B004, unlike NSG 1.5, controls accessories)

2B005 ... surface modifications, as follows, ...

2B007 Unit: Equipment in number; ~~parts and accessories~~ components, accessories, and controls in $ value

2B009 ... and having all ~~the characteristics~~ of the following:

MT applies to spin-forming machines combining the functions of spin-forming and flow forming~~;~~ and flow-forming machines with more than two axes which can be coordinated simultaneously for contouring control and which are “usable in” the “production” of propulsion components and equipment (e.g., motor cases) for "missiles"

(to conform with MTCR 3 Note (1))

NP applies to flow-forming machines~~;~~ and spin-forming machines capable of flow-forming functions having three or more rollers (active or guiding)
(to conform with NSG 1.1)

~~2B018~~ ~~munitions production equipment~~
revise and transfer to 9B018

2B104 NP applies to ~~2B104.a~~ portion of 2B104 described in part a. under Related Controls

2B109 NP applies to ~~entire entry~~ portion of 2B109 also described in 2B209
(NSG 1.1, unlike MTCR 3 Note 1, is limited to machines having three or more rollers)

Unit: Equipment in number; ~~parts and accessories~~ components in $ value

Related Controls: (1) 2B109 does not control machines that are not usable in the production of propulsion components and equipment (e.g., motor cases) for "missiles"; (2) See also 2B009 and 2B209
(to conform with MTCR 3 Note 1 last sentence)

2B116 Vibration test systems, equipment, and components therefor not controlled by 9B018.b nor by 9B006 “usable in” "missiles" or "missile subsystems".
(IML 18.b, which would become 9B018.b, and 9B006 also control vibration test equipment; usable for "missiles" or "missile subsystems" is to conform with MTCR 15 heading)

2B209 Unit: ~~Equipment~~ Machines and mandrels in number~~; parts and accessories in $ value~~
(2B209 does not control parts and accessories)

2B350 Related Controls:

(1) The controls in this entry do not apply to equipment that is (a) specially designed for use in civil applications ... and (b) inappropriate ... for use in storing, processing, producing or conducting and controlling the flow of chemical warfare agents or any of the chemical weapons precursors controlled by 1C350.

(2) The objective of 2B350 should not be defeated by the transfer of any non-controlled item containing one or more controlled components where the controlled component or components are the principal element of the item and can feasibly be removed or used for other purposes.
N.B.: In judging whether the controlled component or components are the principal element, the following factors should be weighed: quantity, value, technological know-how involved, and other special circumstances.

(3) The objective of 2B350 should not be defeated by the transfer of a whole plant, on any scale, which

has been designed to produce any CW agent or AG-controlled precursor chemical.

10. Incinerators designed to destroy chemical warfare agents, ~~or~~ chemical weapons precursors controlled by ECCN 1C350 or chemical munitions ...

2B351 Toxic gas monitoring systems, as follows, and dedicated detectors therefor

Related Controls: ~~N/A~~ Equipment for dissemination, detection, and identification of, and defense against, chemical agents and biological agents are subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls (see 22 CFR part 121 Category XIV(c)).

2B352 Related Controls: ~~N/A~~ Equipment for dissemination, detection, and identification of, and defense against, chemical agents and biological agents are subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls (see 22 CFR part 121 Category XIV(c)).

2B985 Equipment specially designed for manufacturing shotgun shells; and ammunition hand-loading equipment for both cartridges and shotgun shells, not controlled by 9B018
(assumes 2B985 inadvertently omitted and that 2B018 renumbered 9B018; if 2B985 deleted because of the belief that it is covered by the USML, there is no USML item which explicitly covers this; if deletion nevertheless persists, references to 2B985 should be removed from other parts of the EAR, such as 746.8(b)(1)(ii).

~~Note: Exports from the U.S. and transhipments to Iran must be licensed by the Department of Treasury ...~~
(such a Note for just a few ECCNs is misleading, since it applies to all ECCNs)

2B991 ... ~~n.e.s.~~ not controlled by 2B001, 2B201, or 2B290

2B992 ... , not controlled by 2B006

2D001 MT applies to "software" specially designed for the "use" of equipment controlled by the MT portion of 2B004 and 2B009 for MT reasons
(MTCR 7.c. covers "specially designed" software, but not "modified" software; EU interprets MTCR 7.c. software to be limited to "use"; not all of 2B004 and 2B009 is covered by MTCR 7.c. or MTCR 3 Note 1, respectively)

NP applies ...
(reference to software “modified” for 2B001 is consistent with NSG 1.2(d) but not with the heading of NSG 1.2)

2D002 Related Controls ... (2) ... machine tools not controlled by Category 2 (except 2B290 and 2B991 to 2B998)
(EU “Category 2" does not include U.S. unilaterally controlled items)

~~2D018~~ ~~"Software" for the "development, "production" or "use" of items controlled by 2B018~~
(revise and transfer to 9D018)

2D101 NP applies to portion of 2D101 for the NP portions of 2B104, 2B109 or 2B116
(NSG 1.1, 1.5, and 1.7 cover software for portions of 2B104, 2B109, and 2B116)

2D290 (portion related to 2A290, 2A291, and 2A292 would be transferred to Category 0 if those ECCNs were transferred to Category 0)

2D991 ... 2B992 ...
(software for 2B002, which has become 2B992, was controlled by 2D001)

2E001 ... 2A (except 2A290 to 2A293 ..),2B (except 2B018, 2B290, 2B985, 2B991, 2B992, ...) or 2D (except 2D018, 2D290, ...)
(2x29x, 2x018, and 2B985 are not Wassenaar dual-use, MTCR, NSG, or AG items, so technology for them should not be in a number which EU uses only for Wassenaar dual-use, MTCR, NSG, and AG coverage; 2B018 and 2D018 would not be listed in the exceptions in 2E001 if these ECCNs were transferred to Category 9 and 2B985 would not be listed unless it is reestablished)

MT applies to "technology" for items controlled by ... ~~2B018~~, ...
(assumes 2B018 excepted from 2E001 heading)

NP applies to ... 2A225, 2A226, ... 2B116, ... 2B227, ... 2B230, ... 2B232, ... 2D101 ... for NP reasons
(2A225 is covered by NSG 2.7, 2A226 by NSG 3.9, part of 2B116 by NSG 1.7, 2B227 by NSG 1.8, 2B230 by NSG 3.8, 2B232 by NSG 5.2, and parts of 2D101 by NSG 1.1, 1.5, and 1.7)

2E002 ... 2A (except 2A290 to 2A293 ..),2B (except 2B018, 2B290, 2B985, 2B991, 2B992, ...)
(2x29x, 2x018, and 2B985 are not Wassenaar dual-use, MTCR, NSG, or AG items, so technology for them should not be in a number which EU uses only for Wassenaar dual-use, MTCR, NSG, and AG coverage; 2B018 and 2D018 would not be listed in the exceptions in 2E001 if these ECCNs were transferred to Category 9 and 2B985 would not be listed unless it is reestablished)

MT applies to "technology" for items controlled by ... ~~2B018~~, ...
(assumes 2B018 excepted from 2E001 heading)

NP applies to ... 2A225, 2A226, ... 2B116, ... 2B227, ... 2B230, ... 2B232, ... for NP reasons
(2A225 is covered by NSG 2.7, 2A226 by NSG 3.9, part of 2B116 by NSG 1.7, 2B227 by NSG 1.8, 2B230 by NSG 3.8, and 2B232 by NSG 5.2)

~~2E018~~ ~~"Technology" for the "use" of equipment controlled by 2B018~~
(revise and transfer to 9E018)

2E101 ... 2D001, or 2D101 for MT reasons
(not all of 2B004 is covered by MTCR 7.c.; some but not all of 2D001 is covered by MTCR 3, 7.c, and 15)

NP applies to "technology" for NP portions of 2B004, 2B104, 2B109, ~~and~~ 2B116, 2D001, or 2D101

2E290 (portion related to 2A290, 2A291, and 2A292 would be transferred to Category 0 if those ECCNs were transferred to Category 0)

2E301 2B350, and 2B351 ~~and 2B352~~

2E991 "Technology" according to the General Technology Note ...2B992 ... 2B998

2E994 "Technology" according to the General Technology Note ...

3A001 NP applies to the portions of 3A001.d. and e.3. also described in 3A201.b and to the portion of 3A001.e.2. also described in 3A201.a.
(NSG 3.10. covers part of 3A001.d and e.3;
NSG 6.2.2. covers part of 3A001.e.2)

CIV: Yes, except 3A001 ... ~~a.3.a (for processors with a CTP greater than 500 Mtops),~~ a.5.a. ...
(for consistency with previous CIV eligibility)

3A002 GBS: Yes for ... ; and video magnetic tape recorders specially designed for civil television recording
(to conform with Advisory Note 1.b.)

CIV: Yes for ... ; and video magnetic tape recorders specially designed for civil television recording
(to conform with Advisory Note 1.b.)

3A101 b. Accelerators usable for "missiles" or "missile subsystems" capable of ...
(to conform with MTCR 15 heading)

3A231 GBS: ~~N/A~~ Yes
(to conform with Category 3 Note)

CIV: ~~N/A~~ Yes
(to conform with Category 3 Note)

3A992 ... not controlled by 3A002 or 3A292
a. ... ~~n.e.s.~~

3B001 GBS: Yes, except 3B001.a.2. ~~and~~ , a.3. and f. ~~; and for equipment controlled under 3B001.e, they cannot be connected to equipment controlled by 3B001.a.2., a.3., and f.~~

(GBS does not now apply to f.; the condition on GBS eligibility for e. is met by the exceptions for a.2. a.3. and f.)

3B002 b. Note: 3B002.b does not control test equipment specially designed for testing:
1. "Electronic ~~A~~assemblies" or a class of "electronic assemblies" ...
2. ~~Uncontrolled e~~Electronic components, "electronic assemblies" or integrated circuits not contolled by an ECCN with a third digit 0 or by the U.S. Munitions List.

("uncontrolled" without further qualification would include not only EAR99 items controlled only to embargoed designations but also items on the CCL controlled only to Syria, Sudan, and embargoed destinations; "not controlled by an ECCN with a third digit 0 or by the U.S. Munitions List would be consistent with the Wassenaar meaning of "uncontrolled" in 3.B.2.)

3C001 Hetero-epitaxial materials ~~consisting of a "substrate" with stacked epitaxially grown multiple layers~~.
Items:
Hetero-epitaxial materials consisting of a "substrate" with stacked epitaxially grown multiple layers of:
a. Silicon;
b. Germanium; or
c. III/V compounds of gallium or indium
(to clarify that not all silicon, etc., is controlled)

3C002 Resist materials, as follows, and substrates coated ~~with controlled resists~~ therewith
(to clarify that controlled substrates are not listed under "Items" and that the "controlled" resists are those which are listed in 3C002)

GBS: ~~N/A~~ Yes for for 3C002.a. if not optimized for use at a wavelength of less than 365 nm
(to conform with Category 3 Advisory Note 1.e.)

CIV: ~~N/A~~ Yes for for 3C002.a. if not optimized for use at a wavelength of less than 365 nm
(to conform with Category 3 Advisory Note 1.e.)

3C004 Related Controls: This entry does not control hydrides containing ~~less than~~ 20% molar or more of inert gases or hydrogen.

3D001 NS applies to ... ~~and 3B~~ 3B001 and 3B002 ...

~~3D102 "Software" ... 3A001.a.1.a or 3A101~~
(for consistency with EU and MTCR)

3D980 ... 3A980 ~~and~~ or 3A981

3D991 3B991 ~~and~~ or 3B992

3E001 NS applies to ... 3B001 ~~and~~ , 3B002 ...

MT applies to "technology" for equipment controlled by ~~3A001~~ 3A001.a.1.a or 3A101 ~~for MT reasons~~ (more user-friendly.)

NP applies to "technology" for equipment controlled by 3A001, 3A201, 3A225 to 3A233 for NP reasons (NSG 3.10 and 6.2.2 cover parts of 3A001)

3E201 ... ~~equipment~~ items controlled by the portions of 3A001.d., 3A001.e.2.,and 3A001.e.3. described in 3A201, 3A201, 3A225 to 3A233

(NSG 3.10 and 6.2.2 cover some, but not all, of 3A001.d, e.2, and e.3)

3E980 ... 3A980 ~~and~~ or 3A981

3E991 “Technology”, according to the General Technology Note, ...

4A001 ~~NP applies ...~~
~~XP applies ...~~
(there is no NSG equivalent for any part of 4A001, re XP, CTP is not relevant to 4A001)

Unit: Equipment in number; ~~parts and accessories~~ "electronic assemblies" and components in $ value

Related Controls: ... Equipment designed or rated for transient ionizing radiation and information security equipment with specified exceptions ~~is~~ are subject to the export licensing authority of the Department of State, Office of Defense Trade Controls. (See 22 CFR part 121, Category XI and Category XIII(b).)

Related Definitions: ... ~~103~~ 10^3 ... ~~105~~ 10^5 ... ~~106~~ 10^6 ... ~~108~~ 10^8 ...,

4A002 "Hybrid computers", having (all) (any of) the following characteristics, and "electronic assemblies" and specially designed components therefor:
(the lack of either “and” or “or” connecting the two sub-items 4A002.a and 4A002.b leads to ambiguity)

~~MT applies to hybrid computers combined with specially designed "software" for modeling, simulation, or design integration of complete rocket systems and unmanned air vehicle systems that are usable in systems controlled for MT reasons~~
(MTCR 16, which controls hybrid computers, refers to MTCR 1 and 2 “missiles” and “missile subsystems” rather than to MTCR 19 rocket systems and unmanned air vehicle systems; MTCR 16 is covered by the USML, as stated in 4A102)

Unit: Equipment in number; ~~parts and accessories~~ "electronic assemblies" and components in $ value

Related Controls: See also 4A102 and 4A994. The portion of 4A002 also described in 4A102 is subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls. See 22 CFR part 121.)

a. ... ; (and) (or)

4A003 "Digital computers", "electronic assemblies", and related equipment tnerefor, as follows, and specially designed components therefor

~~MT applies to digital computers used as ancillary equipment for test facilities and equipment that are controlled by 9B005 or 9B006.~~
(MTCR 15 covers no such ancillary equipment)

~~NP applies ...~~
(there is no NSG equivalent for any part of 4A003)

License Requirement Notes: See 740.7(d)(4), 742.12(b)(3)(iv), and 743.1 of the EAR for reporting requirements for exports under License Exceptions
(NDAA reg also requires reports for exports under License Exceptions)

CTP ... ~~digital-to-analog~~ ...
(3A001.a.5.a does not control digital-to-analog)

CIV: ... less ~~that~~ than ...

Unit: Equipment in number; ~~parts and accessories~~ "electronic assemblies" and components in $ value
(accessories were expressly removed from coverage of this item a few years ago)

Note 2.c. ...determined by ~~4E~~ 4E001

4A102 "Hybrid computers" "specially designed" for 'modelling,' simulation, or design integration of "missiles" or "missile subsystems". ...
Note 1 This control applies only when the equipment is supplied with software described in 7D103 or 9D103.
Note 2 The 'modelling' includes in particular the aerodynamic and thermodynamic analysis of the systems.
(to conform with MTCR 16)

4A994 ... not controlled by 4A001, 4A002, ~~or~~ 4A003, 4A101, 4A102, or 4A980 ...

(4A101 cross-reference is directly relevant to 4A994.a)

Unit: Equipment in number; ~~parts and accessories~~ components in $ value

4B994 ... "development" ~~and~~ or "production" of magnetic ~~and~~ or optical storage equipment

4C994 ... required for the fabrication of head/disk assemblies for ~~controlled~~ magnetic ~~and~~ or magneto-optical hard disk drives controlled by 4A994.d.1.

D. Software

Note The control status of "software" ~~for the "development", "production", or "use" of equipment~~ related to items described in other Categories is dealt with in ~~the appropriate Category~~ the Categories for those items. The control status of other "software" ~~for equipment described in this Category~~ is dealt with ~~herein~~ in Category 4.

4D001 ... 4D (except 4D980, 4D993 or 4D994)

NS applies to "software" for ~~equipment~~ items controlled by 4A001 to 4A004, or 4D001 to 4D003

~~MT applies to "software" for equipment controlled by 4A001 to 4A003 for MT reasons~~
(re 4A001, MTCR 13 does not control software; see above explanations for lack of CCL MT coverage in 4A002 or 4A003)

Related Controls: ~~N/A~~ "Software" for "information security" (4A001.b and 4D003.c) with specified exceptions and "software" for hybrid computers for "missiles" (4A002 as it overlaps 4A102) is subject to the export licensing authority of the Department of State, Office of Defense Trade Controls. (See 22 CFR part 121, Categories IV(i). XI(d), and XIII(k).)

4D002 NS applies to ~~entire entry~~ "software" to support NS portion of 4E001

~~MT applies to "software" for equipment controlled by 4E for MT reasons~~
(MTCR 13 does not control software;
MTCR 16 software is for equipment, not technology)

XP ... ~~742.3(b)~~ 742.12

~~4D102~~ ~~"Software" "specially designed" or modified for the "development," "production," or "use" of equipment controlled by 4A101~~
(MTCR 13 does not control software)

4E001 ...controlled by 4A ~~or 4D~~ (except 4A980, 4A993, or 4A994) or 4D (except 4D980, 4D993, or 4D994)

MT applies to "technology" for items controlled by 4A001 ~~to 4A003,~~ or 4A101, ~~4D001, 4D102 or 4D002~~ for MT reasons
(see above for rationale for there being no MT coverage in 4A002, 4A003, 4D001, 4D102, and 4D002)

XP ... ~~742.3(b)~~ 742.12

Related Controls: ~~N/A~~ "Technology" for 4A102 and the portion of 4A002 overlapping 4A102 is subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls (See 22 CFR part 121.)

4E980 "Technology" according to the General Technology Note ...

4E992 "Technology", according to the General Technology Note, ...

4E993 "Technology", according to the General Technology Note, ...

5A001 ... and components , as follows

Unit: Equipment in number; ~~parts~~ components ~~and accessories~~ in $ value

5B001 Unit: Equipment in number; ~~parts~~ components and accessories in $ value

5B991 ... ~~n.e.s.~~ not controlled by 5B001

5D001 CIV ...~~5D001.b or .c~~ 5D001.a ...

c.3. ... "software" controlled by ~~5A001, 5B001, or 5C001~~ 5D001 ...

~~5D101~~ delete
(MTCR 12.d does not control software)

5D991 "Software" specially designed ~~or modified~~ for ...

5E001 a. ... equipment, functions or features, materials or "software" controlled by 5A001, 5B001, 5C001, ~~or~~ 5D001, or 5E001.

~~5E111 ... controlled by 5D101~~
(5D101 would be deleted, per above)

5E991 "Technology" according to the General Technology Note ...

5A002 ... as follows, and specially designed components therefor
(items which follow specify equipment but not components)

Related Controls: Move entire entry to become a Note and substitute: (1) The following, as defined in the cited Categories, is subject to the export licensing authority of the Department of State, Office of Defense Trade Controls (22 CFR part 121):
re 5A002.a.1. and a.3., cryptographic equipment with specified exceptions - Category XIII(b)(1);
re 5A002.a.2., cryptanalytic - Category XIII(b)(3);
re 5A002.a.4., suppress emanations - Category XI(b)(3);
re 5A002.a.5., spread spectrum and frequency agility - Categories XI(b)(1) and XIII(b)(2);
re 5A002.a.6., user isolation - Category XIII(b)(4);
re 5A002.a.7., intrusion detection - Category XI(b).
(2) For the control of global navigation satellite systems receiving equipment containing or employing decryption (i.e. GPS or GLONASS),see 7A005 and 22 CFR part 121 Category XV(c)
(decontrol provisions do not logically belong under a “Related Controls” heading; exporters need to know the close relationship, perhaps even overlap, with USML for this ECCN; part (2) is for consistency with Wassenaar 5A002.a N.B.)

Related Definition (move to Related Controls)
(GPS decryption is a related control, not a definition)

5D002 Note: ... ~~License exceptions for commodities are not applicable.~~
(for consistency with applicability of, e.g., BAG and TEMP tools of trade)

Related Controls: Move the “This entry does not contol ...” sentence to a Note at the end of the ECCN and add under “Related Controls”: "Software" for "information security" equipment, with specified exceptions, is subject to the export licensing authority of the Department of State, Office of Defense Trade Controls (see 22 CFR part 121 Category XIII(k)).
(decontrol provisions do not logically belong under a “Related Controls” heading; exporters need to know the close relationship, perhaps even overlap, with USML for this ECCN)

5E002 Related Controls: ... "Technology" for "information security" equipment, with specified exceptions, is subject to the export licensing authority of the Department of State, Office of Defense Trade Controls. (See 22 CFR part 121, Category XIII(k).)
(exporters need to know the close relationship, perhaps even overlap, with USML for this ECCN)

5E992 “Technology”, according to the General Technology Note, ...

6A001 LVS ... ~~6A002.a.2.e.3~~ 6A001.a.2.f

~~a.2.e.3.~~ a.2.f.

6A002 MT applies to ~~optical detectors in 6A002.a.1, a.3, and .e that are specially designed or rated as electromagnetic (including "lasers") and ionized-particle radiation resistant~~ portion of 6A002 also described in 6A102
(MTCR item 18.a applies only to "radiation hardened" detectors)

Unit: ~~parts and accessories in~~ $ value

6A003 NP applies to ~~items controlled in paragraphs 6A003.a.2, a.3 and a.4~~ portion of 6A003 also described in 6A203
(NSG 5.3, unlike 6A003.a.2 and a.3, includes a "rotating mirror" parameter;
NSG 5.4 parameters differ from the speed parameter in 6A003.a.4;
NSG 8.2.3, unlike 6A003.b.1, is limited to radiation-hardened TV cameras)

GBS: Yes for 6A003.a.1 and the non-NP portion of 6A003.a.2 with framing speed of not more than 2 million frames per second.
CIV: Yes for 6A003.a.1 and the non-NP portion of 6A003.a.2 with framing speed of not more than 2 million frames per second.
(per reference to Advisory Note 3 in CCL being replaced)

6A005 NP applies to 6A005:

a.1.c if pulsed, repetition rate greater than 250 Hz, and wavelength between 240 nm and 360 nm~~,~~;

a.2.a ~~(with an~~ if output power > 40W and wavelength between 500 nm and 600 nm~~),~~;

a.4.c if repetition rate greater than 250 Hz, pulse of less than 200 ns, and wavelength between 9,000 nm and 11,000 nm~~,~~;

a.6 ~~(~~if argon ~~"lasers" only~~ and wavelength between 400 nm and 515 nm~~),~~;

c.1.b ~~(with an~~ if alexandrite, bandwidth of 0.005 nm or less, repetition rate greater than 125 Hz, output power > 30W, and wavelength between 720 nm and 800 nm~~),~~;

c.2.c.2.a.2 ~~(with an~~ if output power > 40W~~),~~;

c.2.c.2.b.2 ~~(with an output power > 40W),~~;

~~c.2.d.2.b (with an output power > 40W), and~~

d.2.c if tunable dye oscillator with wavelength between 300 nm and 800 nm; and

para-hydrogen Raman shifters designed to operate at 16,000 nm output wavelength and at a repetition rate greater than 250 Hz with a pumping source "laser" controlled by 6A005

(to conform with the portions of NSG 3.6 covered by 6A005)
GBS: Yes, for:

6A005.d (except the NP portion of d.2.c.);

6A005.a.4.a, a.4.b, and the non-NP portion of a.4.c (including the CO/CO_2 portion of a.3) CO_2 or CO/CO_2 "lasers" having an output wavelength in the range from 9,000 to 11,000 nm and having a pulsed output not exceeding 2 J per pulse and a maximum rated average single or multimode output power not exceeding 5 kW;

6A005.a.3 CO "lasers" having a CW maximum rated single or multimode output power not exceeding 10 kW;

6A005.a.4.a, a.4.b, and the non-NP portion of a.4.c "lasers" that operate in CW multiple transverse mode~~;~~ and have a CW output power not exceeding 15 kW;

6A005.b "lasers" designed for use with a civil fiber optic communication system that have an output wavelength not exceeding 1,370 nm and a CW power output not exceeding 100 mW;

non-NP portion of 6A005.c.2.b.2.b Neodymium-doped (other than glass, pulse-excited, "Q-switched lasers" ~~controlled by 6A005.c.2.b.2.b~~ having a pulse duration equal to or more than 1 ns~~;~~ and a multiple transverse mode output with a "peak power" not exceeding 400 MW;

6A005.c.2.b.3.b. or c.2.b.4.b Neodymium-doped (other than glass) "lasers" ~~controlled by 6A005.c.2.b.3.b or 6A005.c.2.b.4.b~~ that have an output wavelength exceeding 1,000 nm~~,~~ but not exceeding 1,100 nm~~;~~, ~~and~~ that have an average or CW output power not exceeding 2 kW~~;~~, and that operate in a pulse-excited, non-"Q-switched" multiple-transverse mode~~;~~ or in a continously excited, multiple-transverse mode; and

6A005.~~g.1.~~f.

(eligibility for 6A005.b is based on Advisory Note 9 in Category 5 Part 1 Telecommunications)

CIV: Yes, for:

6A005.d (except the NP portion of d.2.c.);

6A005.a.4.a, a.4.b, and the non-NP portion of a.4.c (including the CO/CO_2 portion of a.3) CO_2 or CO/CO_2 "lasers" having an output wavelength in the range from 9,000 to 11,000 nm and having a pulsed output not exceeding 2 J per pulse and a maximum rated average single or multimode output power not exceeding 5 kW;

6A005.a.3 CO "lasers" having a CW maximum rated single or multimode output power not exceeding 10 kW;

6A005.a.4.a, a.4.b, and the non-NP portion of a.4.c "lasers" that operate in CW multiple transverse mode~~;~~ and have a CW output power not exceeding 15 kW;

6A005.b "lasers" designed for use with a civil fiber optic communication system that have an output wavelength not exceeding 1,370 nm and a CW power output not exceeding 100 mW;

non-NP portion of 6A005.c.2.b.2.b Neodymium-doped (other than glass, pulse-excited, "Q-switched lasers" ~~controlled by 6A005.c.2.b.2.b~~ having a pulse duration equal to or more than 1 ns~~;~~ and a multiple transverse mode output with a "peak power" not exceeding 400 MW;

6A005.c.2.b.3.b. or c.2.b.4.b Neodymium-doped (other than glass) "lasers" ~~controlled by 6A005.c.2.b.3.b or 6A005.c.2.b.4.b~~ that have an output wavelength exceeding 1,000 nm~~,~~ but not exceeding 1,100 nm~~;~~, ~~and~~ that have an average or CW output power not exceeding 2 kW~~;~~, and that operate in a pulse-excited, non-"Q-switched" multiple-transverse mode~~;~~ or in a continously excited, multiple-transverse mode; and

6A005.~~g.1.~~f.

(Eligibility for 6A005.b is based on Advisory Note 9 in Category 5 Part 1 Telecommunications.)

Unit: Equipment in number; ~~parts and accessories~~ "lasers", assemblies and components in $ value

Related Controls: ... ~~0B001.b.6~~ 0B001.h.6

6A007 MT applies to 6A007.b and c. when for “missiles” and designed or modified for airborne or marine use and when ...
(for "missiles" is to conform with MTCR 12 heading;
6A007.b covers ground use, whereas MTCR 12.c does not)

6A008 ... having any of the following characteristics ...

~~MT applies ...~~
(MTCR 11.a is limited to radar specially designed or modified for “missiles”, which is on the USML per 6A108 Related Controls (2))

LVS: ... ~~N/A for MT~~ ...

6A018 ~~Magnetic, pressure, and acoustic u~~Underwater detection devices specially designed for military ~~purposes~~ use and controls thereof and components therefor specially designed for military use
(to conform with Wassenaar ML 9.c.)

NS applies to entire entry ~~NS Column 1~~ NS Column 2

6A102 "Radiation hardened" detectors, ...
(MTCR defines "radiation hardened")

6A107 Delete and substitute:

Components specially designed for gravity meters (gravimeters) or gravity gradiometers meeting the specifications of 6A007.b and for “missiles”

(MTCR 12.c is identical to 6A007.b except that it controls components, whereas 6A007 does not, and it is limited to equipment for systems in MTCR item 1)

6A108 a. Radar and laser radar systems, including altimeters, designed or modified for use in “missiles”

(the MTCR 11(a) phrase “including altimeters” was probably originally omitted from CCL 6A108 (and also from EU 6A108) on findings that such altimeters are considered to be munitions; but, under the innovation of including USML MTCR items on the CCL, 6A108,a should contain the full text of MTCR 11(a).

6A203 Unit: Equipment and components in number~~; parts and accessories in $ value~~

(NSG 5.3, 5.4, and 8.2.3 do not control parts or accessories)

6A205 ... other than those controlled by 6A005

Unit: ~~Equipment in number; parts and accessories in~~ $ value

g. Neodymium-doped (other than glass) "lasers", having all of the following:
  1. Operating at a wavelength between 1000 nm and 1100 nm; and
  2. Incorporating frequency doubling giving an output wavelength between 500 nm and 550 nm with an average power at the doubled frequency (new wavelength) of greater than 40 W;

h. Alexandrite "lasers" having all of the following:
  1. Operating at wavelengths between 720 nm and 800 nm;
  2. A bandwidth of 0.005 nm or less;
  3. A repetition rate of greater than 125 Hz; and
  4. An average power output greater than 30 W.

(for consistency with NSG 3.6.c.2 and .f)

6A225 Unit: Equipment in number~~; parts and accessories in $ value~~

(NSG 5.5.a does not control parts or accessories)

6A226 Unit: Equipment in number~~; parts and accessories in $ value~~

(NSG 5.5.b and c do not control parts or accessories)

6A992 Unit: ~~Equipment in number; parts and accessories in~~ $ value

a.2. Specially designed components as follows:

a.2.a Fiber optic image inverters;

a.2.b. ~~Specially designed m~~Microchannel plates ...

a.2.~~a~~b.1. ...
a.2.b.2. ...
b. Non-"space-qualified" single-element or non-focal-plane multi-element semiconductor photodiodes or phototransistors having both of the following:
b.1. A peak response in the wavelength range exceeding 1,200 nm but not exceeding 30,000 nm; and
b.2. A response "time constant" of 0.5 ns or less;
(for consistency with Wassenaar deletion of 6.A.2.a.2.b.1 and 6.A.2.a.4)

6A994 Unit: ~~Equipment in number; parts and accessories in~~ $ value

a.1. Note 6A994.a.1. does not control ...

6A995 Unit: ~~Equipment in number; parts and accessories in~~ $ value

a.2. ... ~~exceeding~~ equal to or less than 10 microseconds

6B108 ... “specially designed” for radar cross section measurement “usable ~~for~~ in” "missiles" ~~and other~~ or "missile subsystems"
(MTCR 17.d is limited to systems “usable in” "missiles" and for those "missile" subsystems which are listed in MTCR 2)

6C992 Unit: ~~Equipment in number; parts and accessories in~~ $ value

6C994 Unit: ~~Equipment in number; parts and accessories in~~ $ value

6D001 MT applies to "software" for equipment controlled by 6A008 ~~or 6B008~~ for MT reasons
(MTCR 17.d, i.e., 6B008, does not control software)

~~NP applies to "software" for equipment controlled by 6A005 for NP reasons~~
(NSG 3.6 does not control software)

6D002 MT applies to "software" for equipment controlled by 6A008 ~~or 6B008~~ for MT reasons
(MTCR 17.d, i.e., 6B008, does not control software)

6D003 CIV: Yes for 6D003.d~~.1~~
(all of 6D003.d is eligible for CIV, per 771A Supplement 1, at which time it was 6D003.h)

f. Magnetometers "software", as follows:

g. Gravimeters~~:~~ "S~~s~~oftware" specially designed ...

6D018 "Software" specially designed or modified for the "development," "production" or "use" of items controlled by 6A018

(to conform with Wassenaar ML 21)

6D102 "Software" “specially designed” for ...

6D103 "Software" for "missiles" that processes post-flight recorded data ~~obtained from systems controlled by 6A108.b~~, enabling determination of vehicle position throughout its flight path.
(MTCR 12 is limited to software for "missiles";
MTCR 12.e.3 is not limited to data obtained from 12.e.1, 2)

6D993 ~~Other~~ Radar "software" not controlled by 6D003, as follows:

Unit: ~~Equipment in number; parts and accessories in~~ $ value

6E001 ... 6C (except 6C992 or 6C994) ...

6E002 ... 6C (except 6C992 or 6C994) ...

6E018 "Technology" according to the General Technology Note for the "development", "production" or "use" of items controlled by 6A018
(to conform with Wassenaar ML 22)

6E101 "Technology" ... for the "use" of ... 6A002, 6A007.b and .c, 6A008, 6A102, 6A107, 6A108, 6B108, 6D001, 6D002, 6D102 or 6D103 for MT reasons
(some but not all of 6A002, 6A007.b and c, 6A008, 6D001, and 6D002 is covered by MT)

6E991 "Technology", according to the General Technology Note, ...

6E992 "Technology", according to the General Technology Note,
...

6E993 "Technology", according to the General Technology Note, ...

7A001 NS applies to entire entry ~~NS Column 1~~ NS Column 2

MT applies to ~~entire entry~~ portion of 7A001.a. and b. also described in 7A101 and to 7A001.c. if continuous output
(MTCR 9.c. threshold and linearity differ from 7A001.a. and b. bias stability and scale factor stability;
MTCR 9.e. is narrower than the comparable 7A001.c., being limited to continuous output)

Related Controls: ... ~~MT controls do not apply to accelerometers that are specially designed and developed as Measurement While Drilling (MWD) sensors for use in downhole well service applications.~~
(The suggested reference to 7A101 in the “MT applies” sentence makes this entry in Related Controls

redundant.)

7A002 NS applies to entire entry ~~NS Column 1~~ NS Column 2

MT applies to ~~entire entry~~ portion of 7A002.a. also described in 7A102 and to 7A002.b. if continuous output
(MTCR 9.d. is narrower than the comparable 7A002.a, being limited to gyros usable in "missiles"; MTCR 9.e. is narrower than the comparable 7A002.b., being limited to continuous output)

7A003 NS applies to entire entry ~~NS Column 1~~ NS Column 2

MT applies to ~~entire entry~~ portion of 7A003 also described in 7A103.a
(MTCR 9.f., unlike 7A003, is limited to equipment or systems using 9.c. or 9.e. accelerometers or 9.d. or 9.e. gyros)

Related Controls: Inertial navigation systems and inertial equipment, and specially designed components therefor specifically designed, modified or configured for military use, including inertial navigation equipment for ships or submersibles and integrated flight instrument systems having gyrostabilizers or automatic pilots designed or modified for use in "missiles", are subject to the export licensing authority of the U.S. Office of Defense Trade Controls. (See 22 CFR part 121, Category VIII(e) and Category XII(d).)
(To conform with Wassenaar cross-reference to Item 9.e. on the Munitions List for inertial navigation equipment for ships or submersibles and with the 7A103 Related Controls statement that 7A103.b. is subject to DOS jurisdiction)

Note: ... a “participating state” ~~in Country Group A:1~~.
(Country Group A:1 does not include all the Wassenaar participating states; to conform with EU and with Wassenaar, the EU definition of "participating state” as “a participating state in the Wassenaar arrangement” should be added to part 772, along with a list of such states)

7A004 ... (These items are subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls. See 22 CFR part 121, Category XII(d).)
(USML Category XII(d) covers "astro-compasses and star trackers")

7A005 ... receiving equipment employing decryption or a null-steerable antenna ...
(to conform with Wassenaar and EU)

MT applies equipment designed or modified for use in “missiles” and capable of providing navigation information at speeds in excess of 1,000 nautical miles/hour and at altitudes in excess of 60,000 feet.
(to conform with MTCR 11.c; even though controlled by DTC, such a paragraph is needed for 7B001 purposes)

7A006 NS applies to entire entry ~~NS Column 1~~ NS Column 2

MT applies to ~~entire entry~~ radar and laser radar altimeters designed or modified for use in “missiles”
(to conform with MTCR 11.a)

Related Controls: See Category 6 for controls on radar. Altimeters designed or modified for "missiles" are subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls. (See 22 CFR part 121 Category XI.)
(to conform with statement in 7A106 to this effect)

7A007 ~~(These items are subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls. See 22 CFR part 121)~~
(there is no entry on the USML which appears to cover direction finding equipment operating above 30 MHz)

7A103 Related Controls: ... (2) Inertial navigation systems and inertial equipment, and specially designed components therefor specifically designed, modified or configured for military use, including inertial navigation equipment for ships or submersibles and integrated flight instrument systems having gyrostabilizers or automatic pilots designed or modified for use in "missiles", are subject to the export licensing authority of the U.S. Office of Defense Trade Controls. (See 22 CFR part 121, Category VIII(e) and Category XII(d).)
(To conform with Wassenaar cross-reference to Item 9.e. on the Munitions List for inertial navigation equipment for ships or submersibles)

a. ... controlled by 7A001~~,~~ or 7A002 for MT reasons~~,~~ or by 7A101 or 7A102 ...
(to conform with MTCR 9.f.)

7A104 ... (These items are subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls. See 22 CFR part 121, Category XII(d) and (e).)
(USML Category XII(d) covers "astro-compasses and star trackers" and XII(e) covers components therefor)

7A994 ~~Other n~~Navigation direction finding equipment, airborne communication equipment, ~~all~~ aircraft inertial navigation systems not controlled ~~under~~ by 7A003 or 7A103, and other avionic equipment, including parts and components~~, n.e.s.~~ specially designed therefor
(there is no way to identify which parts and components are covered by existing wording)

7B001 Test, calibration or alignment equipment specially designed for equipment controlled by 7A (except 7A994 but including items subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls, described in the headings of 7A004, 7A005, 7A104, 7A105, 7A106, 7A115, 7A116, and 7A117 and in the Related Controls paragraph for 7A006)
(to conform with EU, “controlled by 7A” must include items described in proposed 7A ECCN headings and the 7A006 Related Controls paragraph as being controlled by the Department of State but must

exclude other items described in 7A003 and 7A994 Related Controls paragraphs as being controlled by the Department of State)

NS applies to ~~entire entry~~ equipment specially designed for 7A001 to 7A007, including items subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls, described in the headings of 7A004 and 7A005 and in the Related Controls paragraph for 7A006)

~~NS Column 1~~ NS Column 2

(NS would thereby cover what the Wassenaar item covers)

MT applies to ~~entire entry~~ equipment specially designed for 7A101 to 7A106, 7A115 to 7A117, and the MT portions of 7A001 to 7A006

(to conform with EU, even though test, calibration, and alignment equipment for 7A105, 7A106, 7A115, and the MT portions of 7A005 and 7A006 are not controlled by MTCR)

7B003 Equipment specially designed for the "production" of equipment controlled by 7A (except 7A994 but including items subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls, described in the headings of 7A004, 7A005, 7A104, 7A105, 7A106, 7A115, 7A116, and 7A117 and in the Related Controls paragraph for 7A006)

~~NS Column 1~~ NS Column 2

(to conform with EU, "controlled by 7A" must include items described in proposed 7A ECCN headings and the 7A006 Related Controls paragraph as being controlled by the Department of State but must exclude other items described in 7A003 and 7A994 Related Controls paragraphs as being controlled by the Department of State)

NS applies to ~~entire entry~~ equipment specially designed for 7A001 to 7A007, including items subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls, described in the headings of 7A004 and 7A005 and in the Related Controls paragraph for 7A006)

(NS would thereby cover what the Wassenaar item covers)

MT applies to ~~entire entry~~ equipment specially designed for 7A101 to 7A106, 7A115 to 7A117, and the MT portions of 7A001 to 7A006

(to conform with EU, even though production equipment for 7A105, 7A106, 7A115, 7A116, and the MT portions of 7A005 and 7A006 are not controlled by MTCR)

7B102 ~~Equipment, as follows (see List of Items Controlled, other than those controlled by 7B002,~~ Reflectometers specially designed to characterize mirrors, for "laser" gyro equipment, having a measurement accuracy of 50 ppm or less (better).

Items: delete and substitute

The list of items controlled is contained in the ECCN heading.

(sub-items .a and .c are covered by 7B002.a and .b; .c prolifometers!)

7B103 Specially designed "production facilities" for equipment controlled by 7A117 ~~(These items are subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls. See 22~~

~~CFR 121)~~
(ITAR does not explicitly control production facilities specially designed for "guidance sets" and it is believed that USML Category XXI, any article n.e.s. specifically designed or modified for military purposes, has not heretofore been interpreted to control production facilities.)

7B994 ~~other e~~Equipment for test, inspection, or "production" of navigation ~~and~~ or avionics equipment, n.e.s.
(n.e.s., rather than "other" is standard terminology and is more precise)

7D001 NS applies to "software" for equipment controlled by 7A001 to ~~7A004~~ 7A003, 7A006, 7A007, the NS portion of 7B001, 7B002, or the NS portion of 7B003
(to conform with above comments on 7A004, 7A007, 7B001, and 7B003)

MT applies to ~~entire entry~~ "software" specially designed for equipment controlled by 7A001 to 7A003, 7A101 to 7A103, 7B001 to 7B003, 7B102, or 7B103 for MT reasons
(MTCR covers specially designed software, but not modified software;
MTCR does not cover software for the non-MT portions of 7A001 to 7A003, 7B001, or 7B003;
EAR does not cover software controlled on the USML)

Related Controls: ... (2) The "software" related to 7A003.b, 7A004, 7A005, the MT portion of 7A006, ~~7A007,~~ 7A103.b, 7A104, 7A105, 7A106, 7A115, 7A116, or 7A117~~, or 7B103~~ ~~are~~ is subject to the export licensing authority of the U.S. Department of State ...
(to conform with above comments on 7A004, 7A006, 7A007, 7A104, and 7B103)

7D002 MT applies to ~~entire entry~~ portion of 7D002 for "source code" specially designed for equipment controlled by 7A003 or 7A103 for MT reasons
(MTCR controls only specially designed software;
MTCR does not control "software" for uncontrolled equipment)

7D003 MT applies to ~~entire entry~~ portion of 7D003 also described in 7D001, 7D002, 7D101, 7D102 or 7D103 for MT reasons
(MTCR does not control software pursuant to 7D003 specifications, although there may be some overlap between 7D003 and MTCR specifications)

7D101 "Software" specially designed for the "use" of equipment controlled by ... for MT reasons
(MTCR does not cover software for the non-MTCR portions of 7A001 to 7A006 and 7B001 to 7B003)

Related Controls:
1.) The "software" related to 7A003.b, 7A004, 7A005, the MT portion of 7A006, 7A103.b, 7A104, 7A105, 7A106, 7A115, 7A116, or 7A117~~, or 7B103~~ ~~are~~ is subject to the export licensing authority of the U.S. Department of State ...
(to conform with above comments on 7A004, 7A006, 7A104, and 7B103)

7D102 Integration "software" specially designed for the equipment controlled by 7A003 or 7A103 for MT reasons

(MTCR 9.f is limited to specially designed software;
MTCR 9.f does not cover software for the non-MTCR portion of 7A003)

7D994 "Software"~~, n.e.s.,~~ specially designed or modified for ... navigation, airborne communication ~~and~~ or other avionics, n.e.s.
(renumber unilateral item comparable to 7D001)

7E001 NS applies to "technology" for items controlled by 7A001 to ~~7A004~~ 7A003, 7A006, 7A007, ~~7B001 to 7B003,~~ 7B002, ~~7D001 to 7D003~~ 7D002, or 7D003 or the NS portions of 7B001, 7B003, or 7D001

MT applies to ~~entire entry~~ "technology" for items controlled by 7A001 to 7A003, 7A101 to 7A103, 7B001 to 7B003, 7B102, 7B103, 7D001 to 7D003, or 7D101 to 7D103 for MT reasons
(MTCR does not cover technology for the non-MT portions of 7A001 to 7A003, 7B001 to 7B003, or 7D001 to 7D003)

RS applies to ... "civil aircraft"

Related Controls: ... (2) The “technology” related to 7A003.b, 7A004, 7A005, the MT portion of 7A006, ~~7A007,~~ 7A103.b, 7A104, 7A105, ~~7a106,~~ 7A106, 7A115, 7A116, or 7A117, ~~or 7B103~~)~~are~~ is subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls (see 22 CFR part 121)

7E002 NS applies to "technology" for items controlled by 7A001 to ~~7A004~~ 7A003, 7A006, 7A007, ~~or 7B001 to 7B003,~~ 7B002, or the NS portions of 7B001 or 7B003

MT applies to ~~entire entry~~ "technology" for items controlled by 7A001 to 7A003, 7A101 to 7A103, 7B001 to 7B003, 7B102, or 7B103 for MT reasons
(MTCR does not cover technology for the non-MT portions of 7A001 to 7A003 or 7B001 to 7B003)

RS applies to "technology" ... for "civil aircraft"

Related Controls: ... (2) The “technology” related to 7A003.b, 7A004, 7A005, the MT portion of 7A006, ~~7A007,~~ 7A103.b, 7A104, 7A105, ~~7a106,~~ 7A106, 7A115, 7A116, or 7A117, ~~or 7B103~~)~~are~~ is subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls (see 22 CFR part 121)

7E003 "Technology" according to the General Technology Note for the repair, refurbishing or overhaul of equipment controlled by 7A001 to ~~7A004~~ 7A003.

MT applies to ~~entire entry~~ "technology" for equipment controlled by 7A001 to 7A003 for MT reasons
(MTCR does not cover technology for non-MTCR portions of 7A001 to 7A003)

7E004 MT Reason for Control delete
(7E004.b.5. might overlap MTCR 10.c. and d., but the omission of EU 7E104 from the CCL indicates

that 10.c. and d. are construed to be controlled under ITAR.)

Related Controls: ... Re 7E004.b.5, “technology” directly related to 7A116 is subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls. See 7E104 and 22 CFR part 121.

7E101 "Technology" ... for the "use" of equipment or "software" controlled by 7A001 to 7A006, 7A101 to 7A106, 7A115 to 7A117, 7B001, 7B002, 7B003, 7B102, 7B103, 7D101 to 7D103 for MT reasons.

Related Controls:
(1) The "technology" related to 7A003.b, 7A004, 7A005, 7A006, 7A103.b, 7A105, ~~7A016,~~ 7A106, 7A115, 7A116, 7A117, ~~7B103,~~ or 7D103 ~~are~~ is subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls (see 22 CFR part 121) (2.) ...

7E994 "Technology", according to the General Technology Note, ~~n.e.s.~~ for ... navigation, airborne communication ~~and~~ or other avionics equipment, n.e.s.

8A001 Unit: ~~Equipment in~~ number~~; parts and accessories in $ value~~

Related Controls: ... Category 9 for marine gas turbine engines.

8A002 Related Controls: ...; for other robot controls, see 2B007 and 2B207

q. Self-contained, closed or semi-closed circuit (rebreathing) diving and underwater swimming apparatus not controlled by 8A018.a.
(to conform with Wassenaar)

8A018 a. Closed ~~and~~ or semi-closed circuit (rebreathing) apparatus specially designed for military use (i.e., specially designed to be non-magnetic) for diving and underwater swimming, and specially designed components for use in the conversion of open-circuit apparatus to military use ~~(i.e., specially designed to be non-magnetic)~~;
(to conform with Wassenaar ML 17.a.1. and 2.;
assumes new 8A002.q. will include "not controlled by 8A018.a.")

b.1 Diesel engines of 1,500 hp and over with rotary speed of 700 rpm or over specially designed for submarines, and components therefor specially designed for military use;

b.2 Electric motors specially designed for submarines, i.e., over 1,000 hp. quick reversing type, liquid cooled, and totally enclosed, and components therefor specially designed for military use;

b.3 Nonmagnetic diesel engines specially designed for military use with a power output of 37.3 kW (50 hp) ~~and over~~ or more ~~, specially designed for military purposes~~ and with a nonmagnetic content in excess of 75 percent of total mass and components therefor specially designed for military use ~~(An engine shall be presumed to be specially designed for military purposes if it has nonmagnetic parts other than crankcase, block, head, pistons, covers, end plates, valve facings,~~

~~gaskets, and fuel, lubrication and other supply lines or its nonmagnetic content exceeds 75 percent of total weight)~~

~~b.4 Marine boilers designed to have any of the following characteristics ...~~

b.~~5~~4 Submarine and torpedo nets and components therefor specially designed for military use~~;~~

~~b.6 Components, parts, accessories, and attachments for the above~~.

(marine boilers are not controlled by Wassenaar, having been deleted by COCOM many years ago; re components, to conform with Wassenaar ML 9. heading; there is no Wassenaar ML 9 coverage of parts, accessories or attachments; re b.3., revisions are to conform with Wassenaar ML 9.b.3.)

NS applies to entire entry ~~NS Column 1~~ NS Column 2

8A992 Items: delete all except .f and first part of .g and substitute:
The list of items controlled is contained in the ECCN heading
(8A992 covers all underwater systems, n.e.s., so all the sub-items are superfluous except for two which are not underwater systems)

8A994 Boats not controlled by 8A001, marine engines not controlled by 9A002, and specially designed parts therefor

8D018 "Software" specially designed or modified for the "development, "production" or "use" of items controlled by 8A018
(to conform with Wassenaar ML 21)

8E001 ~~TSR: Yes, except for exports ...~~
TSR: Yes
(there is no known Wassenaar obligation to qualify TSR for 8E001 by more than a reporting requirement for the Annex 1 portion thereof)

8E001 ~~TSR: Yes~~
(second entry is redundant and differs from first entry)

8E018 "Technology" according to the General Technology Note for the "development", "production" or "use" of items controlled by 8A018
(to conform with Wassenaar ML 22)

8E992 "Technology", according to the General Technology Note, for ... 8A992 or 8A994

9A001 NS applies to entire entry ~~NS Column 1~~ NS Column 2

Unit: ~~Equipment in~~ number~~; parts and accessories in $ value~~

b. Not certified for civil use by the civil aviation authorities in a ~~country listed in Country Group A:1~~ "participating state";

(Country Group A:1 does not include all the Wassenaar participating states; to conform with EU and with Wassenaar, the EU definition of "participating state" as “a participating state in the Wassenaar arrangement” should be added to part 772, along with a list of such states)

9A002 GBS: ~~N/A~~ Yes, provided specific fuel consumption exceeds 0.23 kg/kW-hr and continuous ISO rating is less than 20,000 kW

CIV: ~~N/A~~ Yes, provided specific fuel consumption exceeds 0.23 kg/kW-hr and continuous ISO rating is less than 20,000 kW

9A003.b Whose design or production origins are either ~~countries in Country Group D:1~~ non-”participating states” or unknown to the manufacturer.
(Country Group D:1 does not include all states not participating in the Wassenaar arrangement)

9A004 Unit: ~~Equipment in~~ number~~; components, parts and accessories in $ value~~

Related Controls: ... (2) This entry ~~describes space launch vehicles (not including their~~ does not control payloads~~) and other “spacecraft”~~
(to conform with Wassenaar Note 1; a launch vehicle is not a form of “spacecraft”; “payload” refers to the payload in the spacecraft, not the payload of the launch vehicle; the payload of the launch vehicle is the “spacecraft”)

9A006 Systems and components specially designed for liquid rocket propulsion systems, as follows: N.B. See also 9A106 and 9A108. (These items ...

Items:

1. Cryogenic refrigerators, flightweight dewars, cryogenic heat pipes or cryogenic systems specially designed for use in space vehicles and capable of restricting cryogenic fluid losses to less than 30% per year;
2. Cryogenic containers or closed-cycle refrigeration systems capable of providing temperatures of 100 K (-173^{o}C)or less for “aircraft” capable of sustained flight at speeds exceeding Mach 3, launch vehicles or “spacecraft”;
3. Slush hydrogen storage or transfer systems;
4. High pressure (exceeding 17.5 Mpa) turbo pumps, pump components or their associated gas generator or expander cycle turbine drive systems;
5. High-pressure (exceeding 10.6 Mpa) thrust chambers and nozzles therefor;
6. Propellant storage systems using the principle of capillary containment or positive expulsion (i.e., with flexible bladders);
7. Liquid propellant injectors, with individual orifices of 0.381 mm or smaller in diameter (an area of 1.14 x 10^{-3} cm^2 or smaller for non-circular orifices) specially designed for liquid rocket engines;
8. One-piece carbon-carbon thrust chambers or one-piece carbon-carbon exit cones with densities exceeding 1.4 g/cm^3 and tensile strengths exceeding 48 MPa.

(to conform with EU and Wassenaar)

9A007 Solid rocket propulsion systems with any of the following (These items ...)

Items:

1. Total impulse capacity exceeding 1.1 Mns;
2. Specific impulse of 2.4 kNs/kg or more when the nozzle flow is expanded to ambient sea level conditions for an adjusted chamber pressure of 7 Mpa;
3. Stage mass fractions exceeding 88% and propellant solid loadings exceeding 86%;
4. Any of the components controlled by 9A008; or
5. Insulation and propellant bonding systems using direct-bonded motor designs to provide a strong mechanical bond or a barrier to chemical migration between the solid propellant and case insulation material.
   Technical Note
   For the purposes of 9A007.e, a strong mechanical bond means bond strength equal to or more than propellant strength.

(to conform with EU and Wassenaar)

9A008 Components, as follows, specially designed for solid rocket propulsion systems: (These items ...)

Items:

1. Insulation and propellant bonding sywstems using liners to provide a strong mechanical bond or a barrier to chemical migration between the solid propellant and case insulation material;
   Technical Note:
   For the purposes of 9A008.a., a strong mechanical bond means bond strength equal to or more than propellant strength.
2. Filament-wound “composite” motor cases exceeding 0.61 m in diameter or having structural efficiency ratios (PV/W) exceeding 25 km.
   Technical Note:
   The structural efficiency ratio (PV/W) is the burst pressure (P) multiplied by the vessel volume (V) divided by the total pressure vessel weight (W).
3. Nozzles with thrust levels exceeding 45 kN or nozzle throat erosion rates of less than 0.075 mm/s;
4. Movable nozzle or secondary fluid injection thrust vector control systems capable of any of the following:

d.1. Omni-axial movement exceeding + 5^{o};
d.2. Angular vector rotations of 20^{o}/s or more; or
d.3. Angular vector accelerations of $40^{o}/s^{2}$ or more.

(to conform with EU and Wassenaar)

9A009 Hybrid rocket propulsion systems with: (These items ...

Items:

1. Total impulse capacity exceeding 1.1 Mns; or
2. Thrust levels exceeding 220 kN in vacuum exit conditions.

(to conform with EU and Wassenaar)

9A010 ... or “spacecraft”, as follows: (These items ...)

Items:

1. Components and structures each exceeding 10 kg. Specially designed for launch vehicles manufactured using metal “matrix”, “composite”, organic “composite”, ceramic “matrix” or intermetallic reinforced materials controlled by 1C007 or 1C010;

   Note: The weight cut-off is not relevant for nose cones.
2. Components and structures specially designed for launch vehicle propulsion systems controlled by 9A005 to 9A009 manufactured using metal matrix, composite, organic composite, ceramic matrix or intermetallic reinforce materials controlled by 1C007 or 1C010;
3. Structural components and isolation systems specially designed to control actively the dynamic response or distortion of “spacecraft” structures;
4. Pulsed liquid rocket engines with thrust-to-weight ratios equal to or more than 1 kN/kg and a response time (the time required to achieve 90% of total rated thrust from start-up) of less than 30 ms.

(to conform with EU and Wassenaar)

9A018 (This ECCN appears twice with different texts. The following assumes deletion of the second entry.)

a. Military trainer aircraft ...

   Note 1 Military "aircraft" does not include "aircraft" or variants of those "aircraft" specially designed for military use which:

      a. Are not configured for military use and are not fitted with equipment or attachments specially designed or modified for military use; and
      b. Have been certified for civil use by the civil aviation authority in a “participating state.”

   Note 2 Absence of configuration for military use would mean that an aircraft would not be considered military.

   (to conform with Wassenaar ML 10 Note 1 and ML 10 SOU)

b. Vehicles specially designed or modified for military ~~purposes~~ use ...
   (to conform with Wassenaar ML 6)

c. Pressure refuelers, pressure refueling equipment, ~~and~~ equipment specially designed to facilitate operations in confined areas~~;~~, and ground equipment~~, n.e.s.,~~ developed specially for military "aircraft" ~~and helicopters, and specially designed parts and accessories, n.e.s.~~
   (the definition of "aircraft" includes helicopters; Wassenaar ML 10.f does not include parts and accessories)
d. Pressurized breathing equipment specially designed for use in military "aircraft" ~~and helicopters~~

e. Military parachutes ~~and complete canopies, harnesses, and platforms and electronic release mechanisms therefor, except such types as are in normal sporting use~~ except parachutes for pin point dropping of rangers or dropping of paratroopers, cargo parachutes, paragliders (drag parachutes, drogue parachutes for stabilization and attitude control of dropping bodies, e.g., recovery capsules, ejection seats, bombs), drogue parachutes for use with ejection seat systems for deployment and inflation sequence regulation of emergency parachutes, recovery parachutes for guided missiles, drones or space vehicles, or approach parachutes and landing deceleration parachutes, all of which are subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls. (See 22 CFR parts 120 through 130)
(assumes Wassenaar ML 10.h.1-6 are covered by the USML)

f. Military instrument flight trainers, except for combat simulation; and components~~, parts, attachments~~ and accessories specially designed for such equipment
(ML 14 does not control parts or attachments)

9A101 Unit: ~~Equipment in~~ number~~; parts and accessories in $ value~~
(9A101 does not control parts or accessories)

9A105 Liquid propellant rocket engines, as follows:
N.B. See also 9A119 (These items ...

Items:
1. Liquid propellant rocket engines “usable in” “missiles”, other than those controlled by 9A005, having a total impulse capacity of 1.1 MNs or greater;
b. Liquid propellant rocket engines “usable in” rockets with a range capability of 300 km or greater, other than those controlled by 9A005 or 9A105.a, having a total impulse capacity of 0.841 MNs or greater.
(9A110 refers to 9A105.a)

9A106 Unit: ~~Equipment and components in~~ number; ~~parts and accessories in $ value~~
(9A106 does not control parts or accessories)

9A108 ... “usable in” rockets with a range capability of 300 km or greater, as follows, specially designed for solid rocket propulsion systems: (These items ...)

Items:
1. Rocket motor cases, ‘interior lining’ and ‘insulation’ therefor;
Note:
'Interior lining' is suited for the bond interface between the solid propellant and the case or insulating liner. It is usually a liquid polymer based dispersion of refractory or insulating material, e.g., carbon filled HTPB or other polymer with added curing agents to be sprayed or screeded over a case interior.

'Insulation' is intended to be applied to the components of a rocket motor, i.e., the case, nozzles inlets, or case closures. It includes cured or semi-cured compounded rubber sheet stock containing an insulating or refractory material. It may also be incorporated as stress relief boots or flaps.

b. Rocket nozzles;

3. Thrust vector control sub-systems.

Technical Note:

Examples of methods of achieving thrust vector control specified in 9A108.c are:

1. Flexible nozzle;
2. Fluid or secondary gas injection;
3. Movable engine or nozzle;
4. Deflection of exhaust gas stream (jet vanes or probes); or
5. Thrust tabs.

(to conform with EU; 9A108.a and b are MTCR 3.c propulsion components, whereas 9A108.c is a MTCR 2 missile subsystem)

9A110 ... other than those controlled by entry 1C010 or 9A010 , specially designed for use in “missiles” or ~~the subsystems controlled by entries 9A005, 9A007, 9A105.a, 9A106 to 9A108, 9A116 or 9A119~~ “missile subsystems” and

(1C010 Related Controls describes overlap with 9A110; MTCR 8.a covers composite structures, laminates, and manufactures thereof for use in MTCR 2 subsystems, which omit the portion of 9A005 not overlapping 9A105.a, 9A007.b-e, 9A106.a and .b, 9A107, 9A108.a and .b, 9A117, and 9A118 but which includes 7A117 and “weapon or warhead safing, arming, fuzing, and firing mechanisms”; there is thus a need for a definition of “missile subsystems” corresponding with MTCR 2)

Related Controls: (1) See also 1A002, 1A102, 1A202, 1C010, ~~and~~ 1C210, and 9A010.

9A115 Launch support equipment “designed or modified” for "missiles", as follows: (These items ...)

Items:

1. Apparatus and devices for handling, control, activation or launching;
2. Vehicles for transport, handling, control, activation or launching.

(to conform with EU and with MTCR 12.a and b)

9A116 Reentry vehicles, “usable in” “missiles”, and equipment “designed or modified” therefor, as follows: (These items ...)

Items:

1. Reentry vehicles;
2. Heat shields and components therefor fabricated of ceramic or ablative materials;
3. Heat sinks and components therefor fabricated of light-weight, high heat capacity materials;
4. Electronic equipment “specially designed” for reentry vehicles.

(for consistency with EU and MTCR 2.b)

9A117 ... “usable in” ...

9A118 Devices to regulate combustion “usable in” engines which are “usable in” ~~rockets with a range capability greater than 300 km or greater, controlled by 9A011 or 9A111~~ “missiles” (These items ...)
(for consistency with MTCR 3.b)

9A119 Individual rocket stages, “usable in” rockets with a range capability ~~greater than~~ of 300 km or greater, other than those controlled by 9A005, 9A007, 9A009, 9A105, 9A107, ~~and~~ or 9A109. (These items ...)
(for consistency with MTCR 2.a and 20.a)

9A120 ... “capable of” ...
Unit: ~~Equipment in~~ number~~; parts and accessories in $ value~~
(9A120 does not cover parts or accessories)

9A990 Related Controls: ~~N/A~~ See 8A018.b.1
b. Off-highway wheel tractors ... ~~, n.e.s.~~

9A991 Related Controls: ~~N/A~~ Also see 9A018.d

~~.e Pressurized aircraft breathing equipment ...~~
(there is no Wassenaar-related reason for adding this sub-item)

9B001 NS applies to entire entry ~~NS Column 1~~ NS Column 2
(to avoid unexplained rollback)

MT applies ~~only~~ to ~~equipment for engines that meet the characteristics described in 9A001~~ portion of 9B001 for "production equipment" or "production facilities" specially designed for "missile propulsion components or equipment"
(to conform with MTCR 3; there is a need for a definition of “missile propulsion components or equipment" to correspond with MTCR 3 and to include the portion of 9A001 for MT reasons)

9B002 NS applies to entire entry ~~NS Column 1~~ NS Column 2

MT applies ~~only~~ to ~~equipment for engines that meet the characteristics described in 9A001~~ portion of 9B002 for "production facilities" or "production equipment" specially designed for "missile propulsion components or equipment"
(to conform with MTCR 3; there is a need for a definition of “missile propulsion components or equipment" to correspond with MTCR 3 and to include the portion of 9A001 for MT reasons)

9B003 NS applies to entire entry ~~NS Column 1~~ NS Column 2

MT applies ~~only~~ to ~~equipment for engines that meet the characteristics described in 9A001~~ portion of 9B003 for "production facilities" or "production equipment" specially designed for "missile propulsion components or equipment"
(to conform with MTCR 3; there is a need for a definition of “missile propulsion components or equipment" to correspond with MTCR 3 and to include the portion of 9A001 for MT reasons)

9B004 NS applies to entire entry ~~NS Column 1~~ NS Column 2

MT applies ~~only~~ to ~~equipment for engines that meet the characteristics described in 9A001~~ portion of 9B004 for "production facilities" or "production equipment" specially designed for "missile propulsion components or equipment"
(to conform with MTCR 3 and Note 2.a; there is a need for a definition of “missile propulsion components or equipment" to correspond with MTCR 3 and to include the portion of 9A001 for MT reasons)

9B005 NS applies to entire entry ~~NS Column 1~~ NS Column 2

~~MT applies to entire entry MT Column 1~~
(MTCR 15.b controls specified wind tunnels but not control systems, instrumentation, or data processing equipment therefor)

GBS: ~~N/A~~ Yes
(for consistency with CIV: Yes in previous reg)
CIV: ~~N/A~~ Yes

9B006 MT applies to portion of 9B006 also described in 2B116 or 9B106
(9B006 appears to overlap 2B116 and 9B106.)

GBS: Yes, for non-MT portion of 9B006
CIV: Yes, for non-MT portion of 9B006

9B007 NS applies to entire entry ~~NS Column 1~~ NS Column 2

MT applies to ~~entire entry~~ portion of 9B007 also described in 9B115 to 9B117
(9B007 is broader than MTCR 2 and 20, which are limited to equipment to produce specified types of rocket motors)

9B009 Unit: ~~Equipment in~~ number~~; parts and accessories in $ value~~
(9B009 does not control parts or accessories)

9B018 delete 1B018 and 2B018 and add new 9B018:
9B018 ~~Equipment on the International Munitions List~~ Munitions production

Reason for Control: NS, MT, RS, AT

NS applies to entire entry ~~NS Column 1~~ NS Column 2

MT applies to ~~specialized machinery, equipment, and gear for producing rocket systems (including ballistic missile systems, space launch vehicles, and sounding rockets) and unmanned air vehicle systems (including cruise missile systems, target drones, and reconnaissance drones) usable in systems that are controlled for MT reasons "missiles" including their propulsion systems and components and pyrolytic deposition and densification equipment~~ portions of 9B018 also described in 1B001,1B101, 1B115, 1B116, 2B004, 2B009, 2B104, 2B109, 2B116, 6B008, 6B108, 7B001, 7B002, 7B003, 7B102, 7B103, 9B001 to 9B007, 9B105, 9B106, 9B115, 9B116, and 9B117 for MT reasons MT Column 1
(MTCR 1 and 2 cover production equipment for only what is defined in "missiles" or "missile subsystems"; MTCR 19 does not control production equipment for other rocket systems or unmanned air vehicles; pyrolytic deposition and densification is not the only MTCR-listed production equipment which overlaps ML 18)

RS applies to entire entry RS Column 1

AT applies to entire entry AT Column 1

LVS: $3,000

GBS: Yes for ~~Advisory Note in this entry to 2B018~~ equipment used to determine the safety data of explosives, as required by the International Convention on the Transport of Dangerous Goods (C.I.M.) articles 3 and 4 in Annex 1 RID for the testing of explosives to transport safety standards, of the following description:

a. Equipment for determining the ignition and deflagration temperatures;
b. Equipment for steel-shell tests;
c. Drophammers not exceeding 20 kg in weight for determining the sensitivity of explosives to shock;
d. Equipment for determining the friction sensitivity of explosives when exposed to charges not exceeding 36 kg in weight.

CIV: N/A

Unit: Equipment in number; ~~parts and accessories~~ components in $ value
(ML 18 does not control parts or accessories)

Related Controls: ~~N/A~~ Ammunition belting and linking machines and ammunition manufacturing machines and ammunition loading machines (except handloading ones) are subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls (see 22 CFR part

121 Category III((c) and (d)).

Related Definition: N/A

Items: delete and substitute:

a. Specially designed or modified production equipment for the ‘production’ of products controlled by the U.S. Munitions List (22 CFR 121) or by ECCNs on the CCL with last three digits "018" and specially designed components therefor;
b. Specially designed environmental test facilities and specially designed equipment therefor, for the certification, qualification, or testing of products controlled by the U.S. Munitions List (22 CFR 121) or by ECCNs on the CCL with last three digits "018".

Note: 9B018.a and b include the following equipment:
a. Continuous nitrators;
b. Centrifugal testing apparatus or equipment having any of the following characteristics:
    1. Driven by a motor or motors having a total rated horsepower of more than 298 kW (400 hp);
    2. Capable of carrying a payload of 113 kg or more; or
    3. Capable of exerting a centrifugal acceleration of 8 g or more on a payload of 91 kg or more;
c. Dehydration presses;
d. Screw extruders specially designed or modified for military explosive extrusion;
e. Cutting machines for the sizing of extruded propellants;
f. Sweetie barrels (tumblers) 1.85 m and over in diameter and having over 227 kg product capacity;
g. Continuous mixers for solid propellants;
h. Fluid energy mills for grinding or milling the ingredients of military explosives;
i. Equipment to achieve both sphericity and uniform particle size in metal powder listed in 22 CFR 121.12 (a)(1);
j. Convection current converters for the conversion of materials listed in 22 CFR 121.12(a)(10).

Technical Note
For the purposes of 9B018, the term 'production' includes design, examination, manufacture, testing and checking.

~~Advisory Note: Licenses are likely to be approved ...~~

(to conform with Wassenaar ML 18.a. and b.; this item should be in Category 9, rather than Categories 1 and 2, because it concerns much more than materials and is closely related to other production items in Category 9)

9B105 Wind tunnels for speeds of Mach 0.9 or more usable for "missiles" ~~and their subsystems~~ or "missile subsystems" (MTCR 15 is limited to items usable in the subsystems listed in MTCR 2)

9B106 Environmental chambers and anechoic chambers, not controlled by 9B006 or 9B018, as follows:
(MTCR 15 overlaps Wassenaar ML 18.b.; ML 18.b, an obsolete version of which is now in existing 1B018.b, should be moved to a new 9B018, since environmental chambers test more than just materials)

9B115 Specially designed "production equipment" , not controlled by 7B103 or 9B018, for the ~~systems, sub-systems, and components controlled by 9A005 to 9A009, 9A011, 9A101, 9A105 to 9A109, 9A111, 9A116 to 9A119~~ following: ~~(These items are subject to the export licensing authority of the U.S. Department of State,Office of Defense Trade Controls. See 22 CFR part 121.)~~
Items:
a. "missile subsystems";
b. "missile propulsion components and equipment"; or
c. “other rocket subsystems”
(to conform with MTCR 2, 3, and 20 "production equipment"; ITAR does not explicitly control such “production equipment” and it is believed that USML Category XXI, any article n.e.s. specifically designed or modified for military purposes, has not heretofore been interpreted to control production equipment; MTCR 2, 3, and 20 omit the portions of 9A005 and 9A006 not overlapping 9A105 and omit all of 9A106, 9A007.b-e, 9A008, and 9A009.b but include 7A117, the MT portion of 9A001, and “weapon or warhead safing, arming, fuzing, and firing mechanisms”; there is thus a need for a definition of “missile subsystems” to correspond with MTCR 2, "missile propulsion components and equipment" to correspond with MTCR, 3 and “other rocket subsystems” to correspond with MTCR 20)

Related Controls: Though many of the items listed in the definitions of "missile subsystems," "missile propulsion components and equipment," and "other rocket subsystems" are subject to the export licensing authority of the Department of State, Office of Defense Trade Controls (22 CFR part 121), rather than to the export licensing authority of BXA, the "production equipment" related to these items is subject to the export licensing authority of BXA.

9B116 Specially designed "production facilities" , not controlled by 7B103 or 9B018, for the ~~systems, sub-systems, and components controlled by 9A004 to 9A009, 9A011, 9A101, 9A104 to 9A109, 9A111, 9A116 to 9A119~~ following: ~~(These items are subject to the export licensing authority of the U.S. Department of State,Office of Defense Trade Controls. See 22 CFR part 121.)~~
Items:
a. "missiles";
b. "missile subsystems";
c. "missile propulsion components and equipment"; or
d. "other rocket subsystems"
(to conform with MTCR 1, 2, 3, and 20 "production equipment"; ITAR does not explicitly control such “production equipment” and it is believed that USML Category XXI, any article n.e.s. specifically designed or modified for military purposes, has not heretofore been interpreted to control production equipment; MTCR 1, 2, 3, and 20 omit 9A004, 9A104, the portions of 9A005 and 9A006 not overlapping 9A105 or 9A106, 9A007.b-e, 9A008, and 9A009.b but include “missiles,” 7A117, the MT portion of 9A001, and “weapon or warhead safing, arming, fuzing, and firing mechanisms”; there is thus

a need for a definition of “missile subsystems” to correspond with MTCR 2, "missile propulsion components and equipment" to correspond with MTCR 3, and "other rocket subsystems" to correspond with MTCR 20)

Related Controls: Though many of the items listed in the definitions of “missiles,” "missile subsystems," "missile propulsion components and equipment," and "other rocket subsystems" are subject to the export licensing authority of the Department of State, Office of Defense Trade Controls (22 CFR part 121), rather than to the export licensing authority of BXA, the "production equipment" related to these items is subject to the export licensing authority of BXA.

9B117 Test benches and test stands for solid or liquid propellant rockets or rocket motors usable for "missiles" or "missile subsystems" having either of the following characteristics:
(MTCR 15.c is limited to test equipment usable for "missiles" or "missile subsystems")

9B990 Vibration test equipment, not controlled by 2B116, 9B006, 9B106, or 9B018.b and specially designed parts and components therefor ~~n.e.s.~~

9D001 "Software" ~~required~~ specially designed or modified for the "development" of equipment or "technology" controlled by 9A (except 9A018, 9A110, 9A120, 9A980, 9A990 ~~or 9A991~~ to 9A992), 9B (except 9B018, 9B115, 9B990 or 9B991) or 9E003.
(re 9A110, 9A120, and 9B115, MTCR 8.a, 19, and the MTCR definition of "production equipment" do not control software; EU does not cover 9A980 or 9A992,)

MT applies to "software" for equipment controlled by 9A001, 9A101, 9A106, ~~9A110, 9A120~~, 9B001, 9B002, 9B003, 9B004, ~~9B005,~~ 9B007, 9B105, 9B106, 9B116 and 9B117 for MT reasons.
(re 9A001, 9A101, 9A106, 9B001 to 9B004, and 9B116, MTCR 3 controls "production facilities," the definition of which includes software and re 9B007, 9B105, 9B106, and 9B117, MTCR 15 controls software; but re 9A110 and 9A120, MTCR 8.a and 19 do not control software and there is no MTCR overlap with 9B005)

Related Controls:
(1) See also 9D101. (2) “Software” ~~“required”~~ specially designed or modified for the “development of items controlled by 9A004 is subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls. (See 22 CFR part 121.) (3) "Software" ~~"required"~~ specially designed or modified for the "development" of equipment or “technology” subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls is also subject to the same licensing jurisdiction. (See 22 CFR part 121.)

9D002 "Software" ~~required~~ specially designed or modified for the "production" of equipment or "technology" controlled by 9A (except 9A018, 9A110, 9A120, 9A980, 9A990 ~~or 9A991~~ to 9A992) or 9B (except 9B018, 9B115, 9B990 or 9B991).
(re 9A110, 9A120, and 9B115, MTCR 8.a, 19, and the MTCR definition of "production equipment" do not control software; EU does not cover 9A980 or 9A992)

MT applies to "software" for equipment controlled by 9A001, 9A101, 9A106, ~~9A110, 9A120~~, 9B001, 9B002, 9B003, 9B004, ~~9B005,~~ 9B007, 9B105, 9B106, 9B116 and 9B117 for MT reasons.
(re 9A001, 9A101, 9A106, 9B001 to 9B004, and 9B116, MTCR 3 controls "production facilities," the definition of which includes software and re 9B007, 9B105, 9B106, and 9B117, MTCR 15 controls software; but re 9A110 and 9A120, MTCR 8.a and 19 do not control software and there is no MTCR overlap with 9B005)

Related Controls:
(1) “Software” ~~“required”~~ specially designed or modified for the “production” of items controlled by 9A004 is subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls. (See 22 CFR part 121.) (2) "Software" ~~"required"~~ specially designed or modified for the "development" of equipment or “technology” subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls is also subject to the same licensing jurisdiction. (See 22 CFR part 121.)

9D003 "Software" ~~required~~ specially designed or modified for the "use" of full authority digital electronic controls ("FADEC") for propulsion systems controlled by 9A (except 9A018, 9A110, 9A120, 9A980, 9A990 ~~or 9A991~~ to 9A992) or 9B (except 9B018, 9B115, 9B990 or 9B991).
(re 9A110, 9A120, and 9B115, MTCR 8.a, 19, and the MTCR definition of "production equipment" do not control software; EU does not control 9A980 or 9A992)

MT applies to "software" required for the "use" of FADEC for gas turbine aero engines controlled by 9A001, 9A101, or 9A106~~, or 9A110~~ for MT reasons.
(9A001 also controls engines; re 9A110, MTCR 8.a does not control software)

Related Controls:
(1) See also 9D103. (2) “Software” ~~“required”~~ specially designed or modified for the “use” of items controlled by 9A004 is subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls. (See 22 CFR part 121.) (3) "Software" ~~"required"~~ specially designed or modified for the "use" of equipment or “technology” subject to the export licensing authority of the U.S. Department of State, Office of Defense Trade Controls is also subject to the same licensing jurisdiction. (See 22 CFR part 121.)

9D004 MT applies to ~~entire entry~~ portion of 9D004.a.for equipment controlled by 9B105, and portions of 9D004.b. and d. for equipment controlled by the MT portion of 9A001 or by 9A101.
(to conform with MTCR 3.a, 15.a and 15.b)

9D018 (basic text from 2D018; reference to 9A018 from 9D018):
"Software" specially designed for the "development", "production", or "use" of equipment controlled by ~~2B018~~ 9A018 or 9B018.
(Wassenaar ML 21 is limited to "specially designed" software)

MT applies to "software" for the MT portions of 9B018 except for 1B115, 1B116, or 9B115
(MTCR 5, 7.b, and "production equipment" do not cover software)

TSR: Yes except N/A for MT

9D103 "Software" with 4A002 or 4A102 for MT reasons specially designed for modelling, simulation or design integration of "missiles", or ~~the subsystems controlled by 9A005, 9A007, 9A105.a, 9A106, 9A108, 9A116 or 9A119~~ "missile subsystems"
(MTCR 16 is limited to software "with related specially designed hybrid ... computers"; MTCR 2 subsystems omit the portion of 9A005 not overlapping 9A105.a and omit all of 9A007.b-e, 9A106.a and .b, 9A107, 9A108.a and .b, 9A117, and 9A118 but include 7A117 and "weapon or warhead safing, arming, fuzing, and firing mechanisms"; there is thus a need for a definition of "missile subsystems" corresponding with MTCR 2)

9D990 "Software", n.e.s. according to the General Technology Note for ...

9D991 "Software" according to the General Technology Note for ...

9E001 "Technology" according to the General Technology Note for the "development" of equipment or "software" controlled by 9A001.c, 9A004 to 9A011, 9B (except 9B018, 9B990 or 9B991), or 9D (except 9D018, 9D990 or 9D991)
(it is suggested above that 9B018 be added)

MT applies to "technology" for items controlled by ... ~~9B005,~~ ... for MT reasons
(MTCR does not cover 9B005 wind tunnel control systems)

Related Definition: ... ~~or "production"~~ technology controlled by 9E001 ... Excluded from control are: ~~technology~~ technical data ...

9E002 "Technology" according to the General Technology Note for the "production" of equipment controlled by 9A001.c, 9A004 to 9A011 or 9B (except 9B018, 9B990 or 9B991)
(it is suggested above that 9B018 be added)

MT applies to "technology" for items controlled by ... ~~9B005,~~ ... for MT reasons
(MTCR does not cover 9B005 wind tunnel control systems)

Related Controls: (1) For "technology" for the repair of controlled structures, laminates or materials, see 1E002.f. See also 9E102. ...
(to conform with Wassenaar 9.E.2 Note 1)

Related Definitions: ~~N/A~~ "Production" technology controlled by 9E002 for gas turbine engines remains controlled when used as "use" "technology" for repair, rebuild and overhaul. Excluded from control are: technical data, drawings or documentation for maintenance activities directly associated with calibration,

removal or replacement of damaged or unserviceable line replaceable units, including replacement of whole engines or engine modules.
(to conform with Wassenaar 9.E.2 Note 2)

9E003 a.9. ... "FADEC" ...
a.10 Note 1 ... systems in 9E003.a.10 ...

~~a.12 Gas bearing for gas turbine engine rotor assemblies~~
a.~~13~~ 12
d. "Technology" "required" for any of the following:
d.1 ~~t~~The "development" ~~or "production"~~ of helicopter power transfer systems or tilt rotor or tilt wing "aircraft" power transfer systems:
~~d.1 Capable of loss-of-lubrication operation for 30 minutes or more; or~~
~~d.2 Having an input power-to-weight ratio equyal to or more than 8.87 kW/kg~~
d.2 The "production" of helicopter power transfer systems or tilt rotor wing "aircraft" power transfer systems
(Wassenaar and EU deleted a.12 and revised .d, per above)

9E018 (basic text from 2E018 and 9E018):
"Technology" according to the General Technology Note for the ~~"use" of equipment controlled by 2B018~~ "development", "production", or "use" of equipment controlled by 9A018 or 9B018.
(to conform with Wassenaar ML 22; assumes that Wassenaar ML 18.c. and d. are covered by the USML)

NS applies to entire entry ~~NS Column 1~~ NS Column 2

9E101 Related Controls: ... 9A110 that are specially designed for use in ~~missile systems and subsystems~~ "missiles" or "missile subsystems" ...
(see comment on 9A110)

9E102 "Technology" according to the General Technology Note for the "use" of goods controlled by 9A004 to 9A011, 9A101, 9A104 to 9A111, 9A115 to 9A120, 9B105, 9B106, 9B115, 9B116, 9B117, 9D101 or 9D103 for MT reasons
(MTCR covers only portions of 9A004 to 9A011)

Related Controls: ... 9A110 that are specially designed for use in ~~missile systems and subsystems~~ "missiles" or "missile subsystems" ...
(see comment on 9A110)

9E990 "Technology" according to the General Technology Note, n.e.s. ...

9E991 "Technology" according to the General Technology Note, n.e.s., ...

Munitions Production Irrationalities

The January 15, 1998, CCL revision left the obsolete versions of COCOM (now Wassenaar) item ML 18 under EAR jurisdiction, thereby putting off to another day the issue which had been under consideration of whether and, if so, how to transfer this to ITAR.

However, the January 15 revision did transfer four missile technology production equipment items to ITAR, namely, the portion of 1B115 for equipment specially designed for the "production" of military propellants or propellant constituents; 7B103 "production facilities" specially designed for 7A117 "guidance sets"; and 9B115 and 9B116 "production equipment" and "production facilities" specially designed for various other MT items.

The January 15 transfer of these four items from the EAR to ITAR is irrational for the following reasons:

1. There is no entry on the USML, which can clearly receive the transferred items. The only munitions production item now on the USML is limited to ammunition manufacturing (Category III(d)). The only other USML entry which might be construed to be applicable is Category XXI "Any article ... specifically designed or modified for military purposes." In the past, Category XXI has not been construed to apply to equipment to produce munitions.

2. ECCN 1B115 puts "production" in quotation marks, whereas the applicable defined term in MTCR item 5 is "production equipment."

3. Although the other three transferred items put "production facilities" or "production equipment" in quotation marks, the applicable MTCR definitions of these terms appear nowhere in U.S. regulations, neither in the EAR nor in the ITAR.

4. The MTCR definition of "production equipment" uses the expression
   specially designed or modified for ... "production"
   The MTCR (and the EAR for MT context) contain contrasting definitions for "specially designed" and "designed or modified"; but neither define "specially designed or modified"
5. The MTCR definition of "production facilities" as
   equipment and specially designed software therefor integrated into installations for "development" or for one or more phases of "production"
   leads to four, probably unintended, conclusions concerning items using the term "production factilities" rather than "production equipment":
   (a) the lack of "specially designed," "designed or modified," "specially designed or modified" or any other modifier for equipment indicates that equipment totally unrelated to production of missiles or missile-related items is controlled;
   (b) the usual practice of integration into installations taking place in the importing

country, i.e., after export, indicates that no export of equipment would be controlled, even of items critical for missile production;

(c) the placement of "therefor" in the definition indicates that software specially designed for equipment having no relevance to missile production would be controlled and the MT definition of "specially designed" indicates that such software would also have no relevance to missile production, having "no other function or use" than for the irrelevant equipment; and

(d) software for the integration of equipment into a missile production installation would not be controlled.

6. The distinction between the transferred MTCR munitions production items and the un-transferred equivalent of Wassenaar ML 18 is unclear. Production equipment as described in the transferred items would still be under EAR jurisdiction to the extent that terms, such as "specially designed" as used in ECCN 2B018, are construed to have broader meanings in non-MT context than in MT context. Limitation of the transferred portion of 1B115 to "specially designed" equipment and of 7B103 to "specially designed" production facilities raises this issue in stark terms.

7. The distinction between the transferred MTCR munitions production items and numerous other production equipment items remaining under EAR jurisdiction is also unclear. For example, the following ECCNs are usable for the production of missiles or missile-related items: 1B001 and 1B101 filament winding and related machines; 1B116 nozzles for producing pyrolitically derived materials; 2B001 and 2B201 machine tools; 2B004, 2B104, and 2B204 isostatic presses; 2B009, 2B109, 2B209 spin-forming and flow-forming machines; 2B116, 9B006, 9B106 vibration test or environmental test systems; 6B008, 6B108 radar cross section measurement; 7B001, 7B002, 7B003, 7B102 production of gyros and other navigation equipment; 9B001, 9B002, 9B003, 9B004, 9B009 production of gas turbine engines; 9B005, 9B105 wind tunnels and their control systems; 9B007, 9B117 rocket motor testing; 9B008 wall skin friction measurement. Indeed, the principal criterion for the entire COCOM Industrial List, most of which has now become the Wassenaar Dual-Use List, is utility for munitions production.

WASS 7-1

ICOTT INDUSTRY COALITION ON TECHNOLOGY TRANSFER
1400 L Street, N.W. Washington, D.C. 20005 Suite 800 (202) 371-5994

March 20, 1998

VIA FIRST CLASS MAIL

Ms. Patricia Muldonian
Regulatory Policy Division
Bureau of Export Administration
U.S. Department of Commerce
P.O. Box 273
Washington, DC 20044

Re: Implementation of the Wassenaar Arrangement List of Dual-Use Items

Dear Ms. Muldonian:

The Industry Coalition on Technology Transfer (ICOTT) appreciates the opportunity to comment on the regulations implementing the 1996 Wassenaar Arrangement (the Regulations). 63 Fed. Reg. 2452 (Jan. 15, 1998). While we appreciate the United States government's effort to harmonize this nation's controls with those imposed by other members of the Wassenaar Group, we are profoundly disappointed that the Regulations tighten controls on some items and eliminate others' eligibility for license exceptions. We are interested in learning whether other nations demanded controls stricter than ours and hence ask whether any of the new restrictions originated with or were proposed by the United States. Our specific comments are:

- We support the February 17 notice, 63 Fed. Reg. 7699, that extended the grace period for unlicensed exports of items newly controlled by the regulations until April 15, 1998.

- The new reporting requirements on license exceptions are broader than the requirements agreed to by the Wassenaar Group because the items to which they apply include many not included in Wassenaar Annex 1 and because several Wassenaar participating states (e.g., Russia, South Korea) are not excepted from the reporting requirement.

- The Regulations eliminate license exceptions for missile technology items, supposedly because this is required by a 1991 amendment to the Export Administration Act (EAA). We see two problems with this action. First, the EAA expired in August 1994 and there is little likelihood that it will be resuscitated in the foreseeable future. The missile technology amendment to the "EAA" was enacted during a previous period when there was no EAA (September 1990-March 1993) and therefore had independent standing *until the EAA was resuscitated.* Once the resuscitation occurred, however, the missile technology provisions became like any other part of the EAA and expired with the rest of the EAA in August 1994. Thus the Administration is not legally bound to drop the eligibility of missile technology items for license exceptions. (The executive order extending the Export Administration Regulations without exception could be amended if need be without undue difficulty.) Second, descriptions of about seventy Export Control Classifications Numbers (ECCNs) that include missile technology controls are broader than the corresponding portions of the Missile Technology Control Regime (MTCR) Annex. This in turn means that to the extent of the overbreadth, these controls are unilateral and have not been adopted by the other MTCR member nations.

- There are numerous other unexplained losses of license exception eligibility. These are detailed in documents previously submitted as part of the comments of the Regulations and Procedures Technical Advisory Committee and include a loss of License Exception CIV for microprocessors (ECCN 3A001a.3.a) whose composite theoretical performance (CTP) exceeds 500 million theoretical operations per second (MTOPS). While this limitation appeared in the pre-1996 version of the EAR, advances in technology and foreign availability suggest that the limit should be removed or at least set substantially higher than 500 MTOPS. Whether or not the other removals of license exception eligibility are intentional, their effect upon United States exporters is real and substantial.

The Industry Coalition on Technology Transfer (ICOTT) is a group of major trade associations (names listed below) whose thousands of individual member firms export controlled goods and technology from the United States. ICOTT's principal purposes are to advise U.S. Government officials of industry concerns about export controls, and to inform ICOTT's member trade associations (and in turn their member firms) about the U.S. Government's export control activities.

Sincerely,

David Calabrese
Acting Chair, Coordinating Committee

Eric L. Hirschhorn
Executive Secretary

ICOTT Members

American Electronics Association (AEA)
American Association of Exporters and Importers (AAEI)
Electronic Industries Association (EIA)
Semiconductor Equipment and Materials International (SEMI)
Semiconductor Industry Association (SIA)

WASS 8-1

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March 20, 1998

W. CLARK MCFADDEN II
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Ms. Patricia Muldonian
Regulatory Policy Division
Bureau of Export Administration
Department of Commerce
P.O. Box 273
Washington, DC 20044

Re: Request for Comments on the Revision to the Commerce Control List and Reporting Under the Wassenaar Arrangement (63 Fed. Reg. 2452; January 15, 1998).

Dear Ms. Muldonian:

The Semiconductor Industry Association ("SIA") would like to offer comments on the interim rule revising the Commerce Control List ("CCL") and implementing new reporting requirements under the Wassenaar Arrangement. SIA represents over 60 U.S.-based semiconductor manufacturers that account for the majority of semiconductor production in the United States.

SIA supports the international harmonization of export controls. If properly implemented, such an effort can increase the global effectiveness of limited export controls, while not imposing a competitive penalty on exporters of any particular country.

Under the revised CCL, U.S. companies in many instances continue to face stricter controls than do their foreign competitors, placing them at a disadvantage in the global market for semiconductors. The U.S. should make as a primary policy goal of on-going negotiations under the Wassenaar Arrangement the adjustment of U.S. export controls as a means of bringing about the equalization of national export control lists and enforcement practices.

In addition to the revision of the CCL, the interim rule imposes new semiannual post-shipment reporting requirements for certain exports made under various license exceptions. SIA offers the following comments regarding these new requirements:

- The country exceptions provided for in the interim rule (§ 743.1(d)) should be extended to, at a minimum, all 33 Wassenaar member countries. Currently, only shipments to the 17 nations of Country Group A:1 are exempt from the reporting

requirements. Most other member countries require reporting only for shipments destined for non-member countries. To maintain a competitive balance and provide necessary relief from the administrative burden, the country exceptions should be expanded.

- To avoid unnecessary duplication of reporting, a U.S. exporter should not have to report a shipment passing through and being reported to another member country. For example, in cases where a U.S. exporter conducts a drop-shipment through a foreign affiliate in another Wassenaar member country, the shipment should have to be reported only once. If the foreign affiliate is reporting the subsequent shipment under its country's own Wassenaar commitments, the U.S. exporter should be exempt from reporting.

If you have any questions or comments about these points, please contact me at (202) 429-2333.

Sincerely,

W. Clark McFadden II
Counsel to the Semiconductor
Industry Association